general plan

RANCHO PALOS VERDES

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general plan/ environmental impact report

rancho palos verdes

adopted june 26, 1975

AS AMENDED ON
SUMMARY SHEET

resolution

RESOLUTION NO. 75-43

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF RANCHO PALOS VERDES, CALIFORNIA, RECEIVING AND CERTIFYING THE FINAL ENVIRONMENTAL IMPACT REPORT PERTAINING TO THE GENERAL PLAN AND ADOPTING THE GENERAL PLAN OF THE CITY OF RANCHO PALOS VERDES.

THE CITY COUNCIL OF THE CITY OF RANCHO PALOS VERDES, DOES RESOLVE AS FOLLOWS:

Section 1: The City Council does hereby receive that certain document entitled "General Plan Including Environmental Impact Report" and hereby certifies that the Final Environmental Impact Report contained therein has been completed in compliance with the California Environmental Quality Act and State Guidelines and that the Council has reviewed and considered the contents of the report in reaching its decision on the General Plan. The Council further finds that the adoption of the General Plan will not have a significant adverse environmental impact.

Section 2: That certain document entitled "General Plan Including Environmental Impact Report" on file in the office of the Director of Planning and incorporated herein by reference is adopted as the General Plan of the City of Rancho Palos Verdes.

Section 3: The City Clerk shall place an endorsement upon the General Plan described in Section 2 hereof to show that it has been adopted by the Rancho Palos Verdes City Council on even date herewith.

Section 4: Resolutions 74-19, adopting the Recreation Element of the Rancho Palos Verdes General Plan, and 74-67, adopting the Interim Open Space Plan of the Rancho Palos Verdes General Plan, are hereby repealed.

Section 5: The Bikeways Plan adopted by the City Council on March 5, 1974, is hereby revoked.

Section 6: The City Clerk is instructed to file a Notice of Determination with the County Clerk pursuant to Section 15085(g) of the State Guidelines. Said Notice of Determination shall state;

(a) That the City Council has adopted a General Plan;

(b) That the project will not have a significant effect on the Environment; and

(c) That the Environmental Impact Report was prepared pursuant to the provisions of the California Environmental Quality Act.

APPROVED AND ADOPTED this 26th day of June, 1975.

Marilyn Ryan

Mayor

ATTEST:

LEONARD G. WOOD, CITY CLERK AND EX OFFICIO CLERK OF THE COUNCIL

Leonard G. Wood

City Clerk

I HEREBY CERTIFY that the foregoing is a true and correct copy of a resolution passed and adopted by the City Council of the City of Rancho Palos Verdes at a regular adjourned meeting thereof held on the 26th day of June, 1975.

Leonard G. Wood

City Clerk

CITY OF RANCHO PALOS VERDES

GENERAL PLAN AMENDMENTS

SUMMARY SHEET

AS OF APRIL 14, 1988

AMENDMENT NO.	LOCATION	AMENDMENT	RESOLUTION	DATE ADOPTED
2	Lots 1, 2, 3, 16, and 17 of Tract No. 28750, Peacock-ridge and Highridge	Amend Land Use designation from residential 2-4 dwelling units per acres to residential 4-6 du/ac.	77-80	October 4, 1977
3	Coastal Zone in City of Rancho Palos Verdes	Regulations for use and development of all property located within the coastal zone.	78-81	December 19, 1978
4	Lots 1 through 8, Tract No. 27832, Indian Valley	Amend Land Use designation from residential 4 du/ac.	78-56	September 5, 1978
5	(1) former Los Cerros School site (Avenida Esplendida and Avenida Classica) (2) former Tierra Altra school site (Indian Valley and Armaga Spring)	Land Use designation from institutional to residential 2-4 dwelling units per acre on both sites, with urban appearance overlay control districts for the Los Cerros site.	79-78	October 2, 1979
6	980 Silver Spur Road	Land Use designation from commercial office to com-mercial retail, remove natural overlay control district.	80-47	June 17, 1980
9	City of Rancho Palos Verdes	Amend Housing Element of the City's General Plan. (Changes to policies on p. 44, 56, 78)	81-71	September 23, 1981

10	Former Abalone Cove School site and an amendment to Coastal Plan	Amend Land Use designation from agriculture to commercial recreational; allow visitor serving uses in coastal zone.	82-24	April 20, 1982
11	Southwest corner of Paseo Del Mar and La Rotunda Drive	Change designation from institutional to residential single family 1 du/ac.	82-62	September 7, 1982
12	Golden Cove, Palos Verdes Drive West/Hawthorne Boulevard	Amend Land Use designation from commercial retail to residential 6-12 du/ac.	84-50	August 7, 1984
13	32201 Forrestal Drive Ladera Linda	Change Land Use designation institutional to residential 2-4 du/ac.	82-63	September 7, 1982
14	Eastview Annexation	Amend General Plan to include policies/land use designations for the East-view annexation.	84-48	August 7, 1984
16	Commercial Annexation Hawthorne Blvd.	Amend General Plan Land Use designation from Residential to Commercial	88-237	September 13, 1988

NOTE: Amendment Numbers one (1) and seven (7) were withdrawn.
Amendment Number eight (8) tabled in 1982 indefinitely.
Amendment Number five (15) denied.

BO:pg

citizen participation

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Howard McCrady (March 1974 to October 1974)
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introduction I

"The ideal of maximum participation in democratic decision-making particularly applies to participation in the affairs of the city. One of the most striking and encouraging phenomenon of our times has been the deep and renewed interest of citizens in local community matters. To frustrate the endeavor of individuals to fix the unit of their local governance and to repose that power in land, not people, would be to stifle that self-determination. The seeds of democracy lay in the Greek city-state; we would be reluctant to stay the fruition of that democratic expression in the city of today. Neither the state nor federal Constitution sanctions such negation, each compels the opposite."

Excerpt from decision by Justice J. Tobriner, Supreme Court of the State of California, Gordon M. Curtis, Jr., et al.,

v.

Board of Supervisors of Los Angeles County, et al.
L.A. 29873, filed 9-19-72.

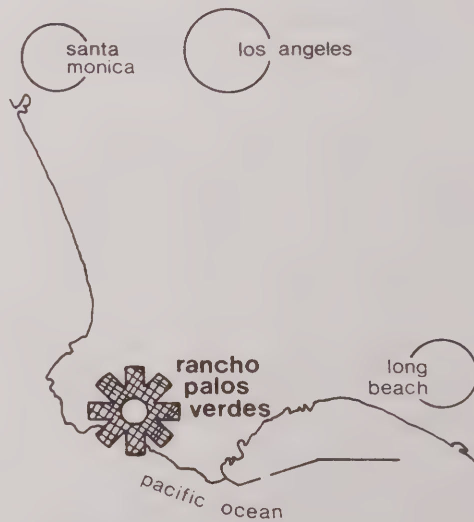
The City of Rancho Palos Verdes is located on the Palos Verdes Peninsula in the southwest tip of Los Angeles County. The City includes 12.3 square miles of land and 7-1/2 miles of coastline. One-third of the total land is vacant, with more than three-fourths of the immediate coastline land vacant.

The Peninsula has a unique physiography, formed over millions of years of submerging and lifting from the Pacific Ocean. Once an island, the Peninsula, nine miles wide by four miles deep, now rises above the Los Angeles Basin, with the highest elevation at 1480 feet. The forming of the Peninsula has resulted in the unique terrace configurations readily observable today and the steep, rocky cliffs at the ocean's edge which rise from fifty to three hundred feet. Erosion has created numerous steep-walled canyons.

Its history is equally interesting, from the days of the early peoples who migrated to the area, the Gabrielinos (the last Indians in the area), the Spanish explorers and missionaries, Rancho de los Palos Verdes, the whalers, take-over by the Americans, the Palos Verdes Project, the developing of cities, and to the present.

With its magnificent views of the Los Angeles Basin and ocean, and clean air, the Peninsula is a very desirable place to live. Construction of homes began in the 1920's and continued at varying rates to the present. The rate increased dramatically in the 1960's and intensified in densities, primarily in unincorporated areas.

Each of the four cities on the Peninsula incorporated for the same basic reason — control of planning and implementation policies. Palos Verdes Estates incorporated in 1939, Rolling Hills and Rolling Hills Estates in 1957, and Rancho Palos Verdes in 1973.



regional vicinity I

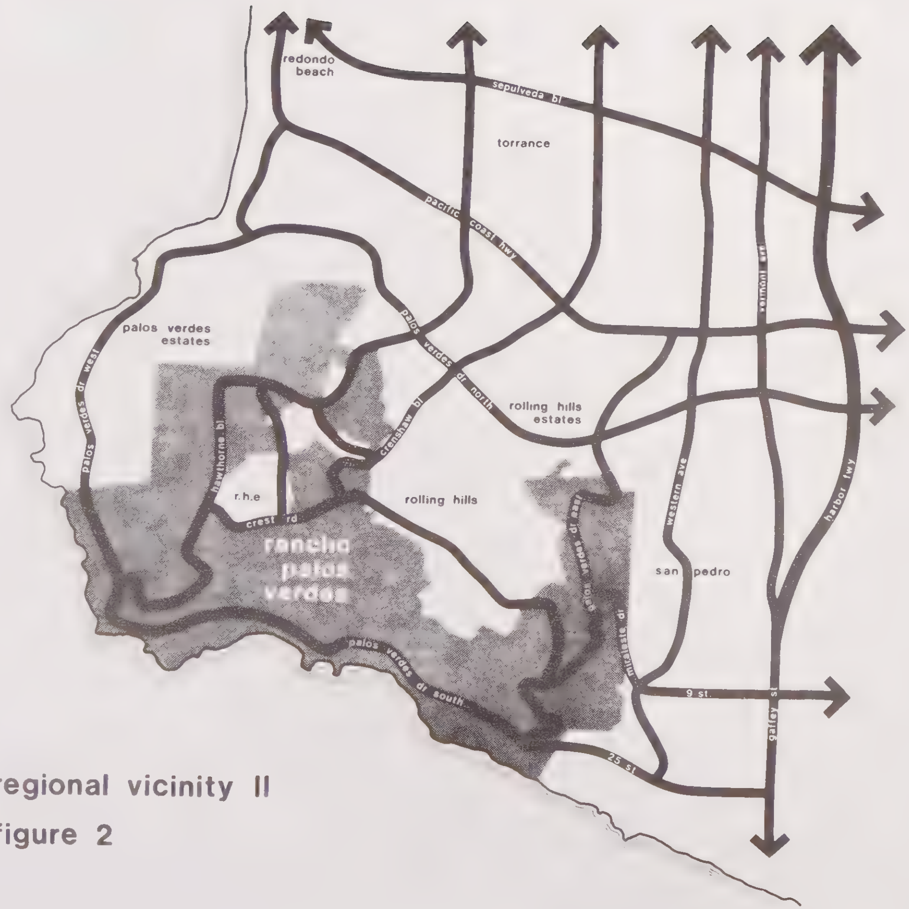
figure 1

During the 1960's, the citizens of the entire Peninsula made repeated attempts to influence County planning and zoning in the unincorporated area. The homeowners' associations bonded into the Peninsula Advisory Council, and Save Our Coastline, a citizens group, was created to concentrate the same attempts on the coastal area. There were repeated failures as the County granted more and more zone changes for higher densities, with little concern for the sensitive environment of the area.

Incorporation attempts for a fourth city began in 1962, intensifying in 1969. There was much litigation and many setbacks before the Supreme Court, in September 1972, ruled 7 to 0 in Curtis vs. Board of Supervisors that landowners could not prevent voters from determining their municipal government. After six months delay, an election was set. In that election, held August 28, 1973, an overwhelming majority of 5 to 1 voted in favor of incorporation and elected its five City Council members, who first met September 7, 1973.

The City was formed. Its goals were clear. The major goal was self-determination. The right to determine land use, which meant lower densities, and preservation of the coastal resources, the canyon and rural resources, and the views.

Rancho Palos Verdes, a general law city, operates in the Council/City Manager structure. A small staff was hired to provide administrative and planning services, with the other services provided through contract with Los Angeles County. Interim zoning



regional vicinity II

figure 2

was adopted, and a building moratorium was imposed on large areas of the City.

An additional step in the process was the presentation of development alternative models. This study included the environmental, social, and fiscal impacts of the models. Response to this study helped to refine some basic assumptions to land use planning and to give the staff direction in drafting of the Plan.

Special legislation for newly incorporated cities was passed by the State Legislature, extending the deadline for the General Plan to June 30, 1975. A process was outlined to get maximum citizen participation in the development of the Plan, even though the schedule was very tight. One of the first steps was the appointment by the City Council of a Steering Committee to organize a General Plan Goals Committee. The total Committee involved some 200 citizens who worked together in subcommittees. The Committee submitted a report to the Council which was a statement of goals, objectives, and policy recommendations on the various elements of a general plan. Many technical background reports were completed by staff and consultants.

The California Government Code requires cities and counties to adopt general plans which must include nine mandatory elements, and may include others. The mandatory elements are: land use, circulation, housing, conservation, open space, seismic safety, noise, scenic highways, and safety.

This Plan has been designed to integrate the elements of a general plan with the required environmental impact report. The Plan will thus serve as policy direction for planning and implementation, an analysis of the impacts of the Plan, and a benchmark to assess future environmental impact reports on projects. The Plan includes the technical background information and analysis of an environmental impact report and the policy recommendations of a general plan. It was intended to eliminate the duplication which would be inherent in two separate documents and to provide as complete information as possible.

The Guidelines for Implementation of the California Environmental Quality Act of 1970, part of the California Administrative Code, allows for the requirements of an Environmental Impact Report on a general plan to be satisfied by the general plan document, providing: (1) all of the points required to be in an EIR are addressed, and (2) the document contains a special section or a cover sheet identifying where the document addresses each of the points. Such a cover sheet is included in the Appendix.

This General Plan is not organized into the traditional elements, but is integrated into functional relationships, which eliminates the duplication inherent in traditional plans. Consequently, an additional cover sheet is included in the Appendix to indicate where the mandatory elements are covered.

The Natural Environment Element was prepared by EDAW, Inc., planning consultants. The Fiscal Analysis was partially prepared by David L. Peterson, legal and economic consultant.

The purpose of a general plan is to provide a general, comprehensive, and long-range guide for community decision-making. As such, it must reflect the community's goals and have the community's support. Widespread participation in the process is essential. It is for this reason that the General Plan Goals Committee was established. In addition, the process was designed to include several points for public input prior to public hearing.

natural environment element II

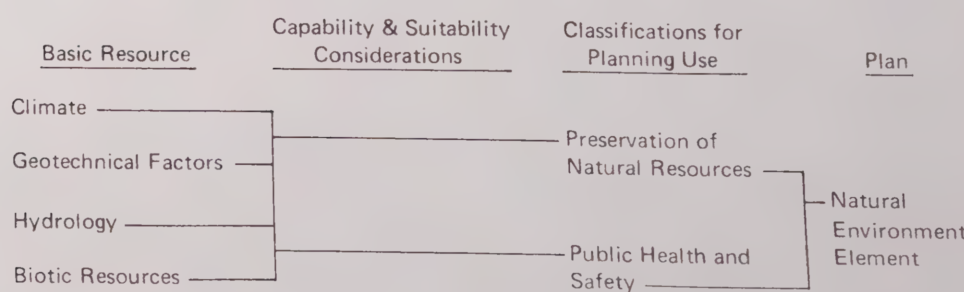
IT IS THE GOAL OF THE CITY OF RANCHO PALOS VERDES TO CONSERVE, PROTECT, AND ENHANCE ITS NATURAL RESOURCES, BEAUTY, AND OPEN SPACE FOR THE BENEFIT AND ENJOYMENT OF ITS RESIDENTS AND THE RESIDENTS OF THE ENTIRE REGION. FUTURE DEVELOPMENT SHALL RECOGNIZE THE SENSITIVITY OF THE NATURAL ENVIRONMENT AND BE ACCOMPLISHED IN SUCH A MANNER AS TO MAXIMIZE THE PROTECTION OF IT.

natural environment

This section discusses the natural physical environment of the City of Rancho Palos Verdes and represents an extension of the continuing planning process which initially inventoried the natural resources. It provides parameters and policies to deal with the environmental management of the community.

The approach that has been taken is to develop a plan which illustrates and describes all facets of environmental relationships and avoids the situation of conflicts and complexity inherent in traditional, function-by-function planning methods which deal with separate elements. For this reason, this study deals with the natural resources of Rancho Palos Verdes and related considerations, and is not the customary open space and conservation element of the typical general plan, but is a single unit handling the entire spectrum of the natural physical environment pertinent to the General Plan. The approach parallels that taken with the urban factors and social factors portions of the General Plan which also deals with generic, logically interacting groups of "traditional" plan elements, rather than individual elements. The basis for this proposed Natural Environment Element has been the environmental capabilities inherent in the land of Rancho Palos Verdes. Land "capability" is fundamentally an evaluation of the basic ecologic units dealing with the natural factors of land, climate, hydrology, biotic resources, geotechnical factors, and the systematic relationships which must exist among them. The format which follows discusses each of these units as they apply to Rancho Palos Verdes individually, as detailed factors, then in appropriate classification combinations, and finally as an overall Natural Environment Element which, in concert with the urban and social factors components, form the General Plan.

PROCESS



This discussion of Climate describes the components of weather which affect the City in terms of temperatures, winds, precipitation and air quality. The Biotic Resource portion describes the significant ecologic habitats associated with the land-based natural vegetation communities, as well as ocean related resources along the immediate shoreline. The section on Geotechnical factors includes topographic conditions, geologic hazards, and mineral resources. Hydrology covers the natural and man-made water drainage patterns within the City and the factors affecting them, as well as their influence on the other natural environment factors. Each of the above units has been classified according to capabilities and suitabilities into categories of Preservation of Natural Resources, or Public Health and Safety.

The two categories have then been combined to develop the Natural Environment Element which becomes a guide for natural environmental resource management policies.

It is stressed that this approach to the balanced treatment of environmental considerations with land uses in the planning process reflects several unique characteristics of the Rancho Palos Verdes community which must be addressed in this component of the General Plan:

— The large amounts of undeveloped open space which exists in the community at the time of preparation of the plan.

— The unusal topography, orientation, vegetation, and other factors which characterize the Rancho Palos Verdes portion of the Palos Verdes Peninsula, shaping and restricting future growth.

— Careful planning and management of a natural environmental resource must be comprehensive and anticipatory in order to preclude irreversible and irretrievable commitments of this resource made on a piecemeal and expedient basis at future dates.

— The fact that this open space has a demonstrable, recognized, extraordinary value and significance as a regional asset as well as a local amenity, requires that a stewardship function be exercised by the City in the planning and future management of this resource above and beyond that normally exercised by a typical community dealing with its own park, open space, and recreational needs.

— The community has, through numerous expressions of goals, ideals, and other aspirations and intentions, suggested a policy in which the maintenance of balance between urbanization and retention of natural "open space type" amenities would be essential in the planning of the community.

Further it should be recognized that, while this stage of analysis and documentation of the planning effort extends considerably beyond the level of detail accomplished in the initial natural resource inventory effort, it constitutes that level of detail appropriate to the General Plan process. As such, it is not intended, nor should it be used, for detailed area analysis or specific project feasibility, which can only be established in more detailed studies as an extension of the General Plan and its implementation. The data utilized in this analysis have been derived from a wide variety of secondary sources, coupled with field confirmation in selected areas, which has been synthesized to the degree necessary for the General Plan process. More detailed information on specific subjects or locations can be found in the data sources listed in the data source references in this section and in the bibliography.

Climate

Rancho Palos Verdes enjoys a climate and air quality considered as being among the ideal climates of the world. Its average maximum and minimum temperatures range approximately between 67° and 50°, and annual precipitation is approximately 11" to 15".

Precipitation intensity is variable during storms. Records of maximum precipitation rates are not available specifically for the City, however, data from the Botanic Garden area of the Peninsula indicates that .3 of an inch has fallen within a 5 minute period and 1.1" in a one hour period (Gales). The latter occurring during one of the heavy 1969 storms.

The sea breeze, which is the predominant wind, is a primary factor in creating this climate and typically flows from the west-southwest in a day-night cycle with speeds generally ranging from 5 to 15 mph. The sea breeze maintains the cool temperatures and clean air circulation and generally prevents warmer inland temperatures and air pollution from permeating into the peninsula, except under certain seasonal conditions such as the offshore Santa Ana winds.

The climate on the peninsula has been classified by other studies into five (5) micro zones (Gales). Of the five, there are three (the Coastal Zone, Upper West Face of the Hill, and Middle Highlands/Eastern Upper Slopes) that apply to the City of Rancho Palos Verdes. (See Figure 3).

Zone I – Coastal

The coastal zone extends along the coastline and inland to the 500-700 ft. elevation line. Temperatures are generally mild and frost is a rare occurrence. The area around Pt. Vicente tends to be slightly windier, cooler, and receives more fog and low cloudiness than other areas within this zone. The remainder of the coast is more sheltered than the Point, accounting for this difference. In general, this Coastal Zone tends to have more fog and low clouds, cooler days, but warmer night temperatures than other areas of the peninsula. Relative humidity is higher than in other zones due to proximity to the ocean. Mean monthly temperatures were calculated from average monthly temperatures recorded at various stations located within each zone.

Zone 1 Mean Temperatures/°F.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
High	59	62.4	62.7	63.9	65.3	68.3	72.4	74.7	72.9	69.4	65.7	62.1
Low	49	51	51.4	51.8	54.6	58	61.3	63.3	60.6	57.3	54.4	51

Zone 2 – Upper West Face of the Hill

This zone is above the 500-700 ft. elevation and extends to the top of the peninsula heights. The climate is similar to that of the coastal zone, but nighttime temperatures are generally cooler, and there are more occurrences of very warm days than in the coastal zone. Relative humidity is fairly high, but fluctuates more than in the Coastal Zone. The afternoon sea breeze tends to keep temperatures moderate and can be brisk down through the valleys.

Zone 2 Mean Temperatures/°F.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
High	56	61.5	61.5	64.5	65	67.5	72.5	75.5	72	69	65	59.5
Low	44	48	52.5	49	52	53	59	60.5	58	54.5	50	51

Zone 3 – Middle Highlands/Eastern Upper Slopes

This zone tends to have greater climatic variation than the previous zones. Temperatures are slightly warmer than in Zone 2 and warm days can be very warm with cool days as cool or cooler than in any other zone. Temperatures have about a 20° range

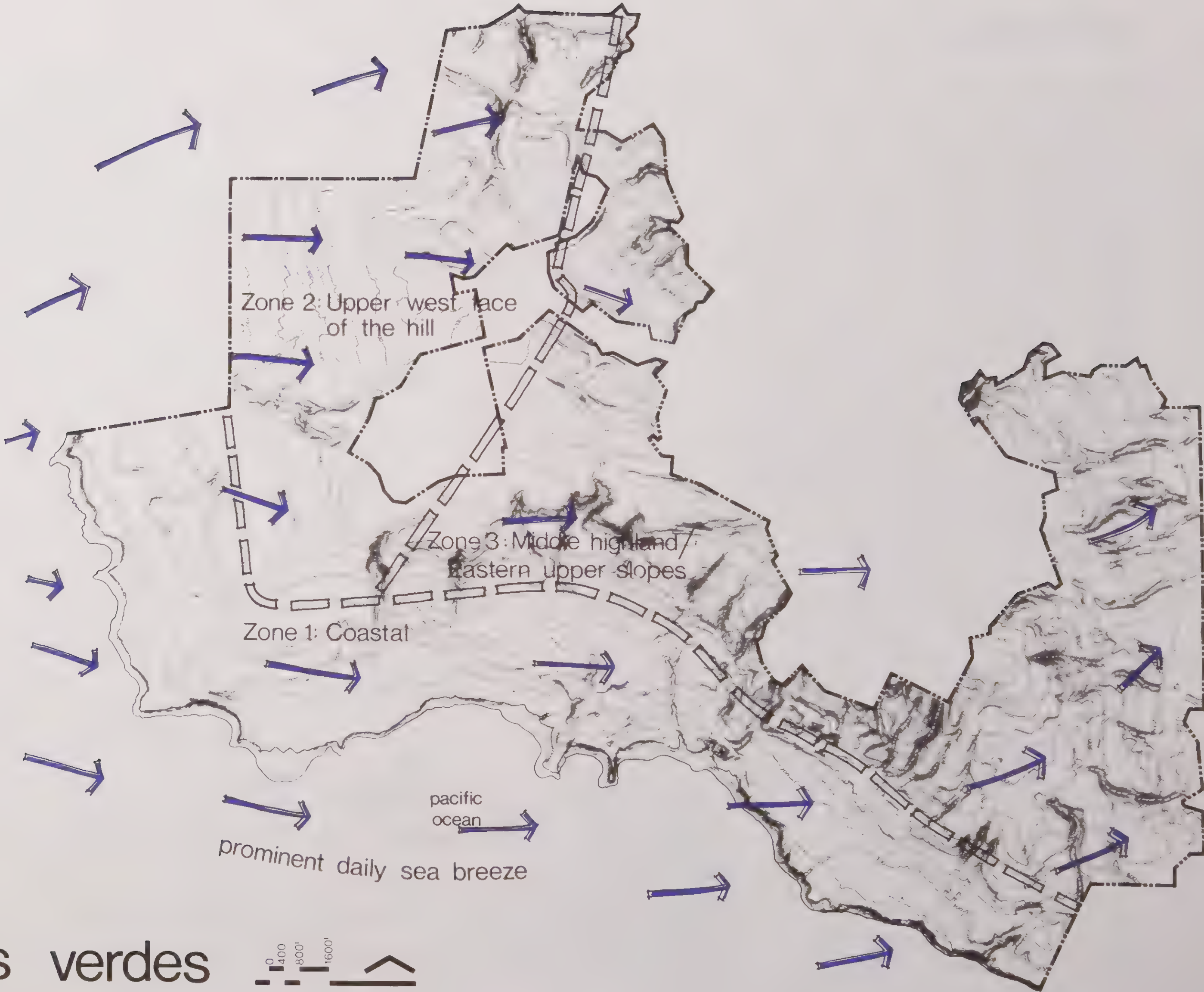
This mild climate combined with soil and plant nutrients have created a setting enabling a wide variety of both native and man-introduced plant species to grow within the City. In order to flourish, many man-introduced species require a certain amount of supplementary water and care. Other species have adapted well and thrive with the natural conditions. At one time, agricultural use of large portions of the City was able to take advantage of this environmental quality but has given way to residential development also attracted to the mild climate and clean air.

Zone 3 Mean Temperatures/°F.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
High	59.9	64	64.9	69.7	71.4	76.4	83.3	84.1	79.6	73.9	66.3	59.1
Low	44.6	47.7	48	49.3	52	55.7	59.8	62.7	59.1	55.3	49.3	45

climate
figure 3

Source : EDAW



rancho palos verdes

Air Quality

Air quality monitoring and control is primarily the responsibility of the State Air Resources Board, the Los Angeles County Air Pollution Control District and the Federal Environmental Protection Agency. The main area of concern of these agencies is control of emission sources, and they do not deal in any direct way in land use planning. The EPA, however, is in the process of developing guidelines for approval of complex sources of air pollution such as shopping centers, sports stadiums, and others requiring vehicular transportation, which would indirectly affect land use planning considerations. Air quality data specific to Rancho Palos Verdes are not currently available, since the nearest air quality monitoring station is in Long Beach (Station 72, Los Angeles County, APCD).

air quality monitoring stations

los angeles county air pollution control district

legend: ● air monitoring stations

figure 4

Air quality readings at station 72, on occasion, have dropped below current air quality standards of the State Air Resources Board (L.A. Co., APCD) and air quality within the City can be assured to be better to or at least equal to the readings at Station 72. A periodic sampling and testing program would be necessary in order to determine actual levels of air quality within the City and establish baseline data to assess any deterioration of this quality. This may become necessary as the E.P.A. institutes its program of regulating complex sources of emissions and the need to quantitatively assess impacts to air quality from any proposed development becomes more apparent.

The ocean is the primary air recharge area for the region and this continuing daily flow of clean ocean air over the peninsula provides the high level of air quality which is prevalent in Rancho Palos Verdes. Inland cities within the region also depend on this ocean air flow for their clean air. The strength, direction, frequency, and degradation of the quality of this air as it passes inland are factors in the air pollution levels experienced by inland areas. The cities on the Palos Verdes Peninsula tend to have lesser impact than other coastal cities in creating poor air quality in the inland areas due to their low urban activity/traffic activity levels. The general air flow pattern for the region, as described by APCD and other sources, indicates that the peninsula splits the sea breeze in such a fashion that the majority of the air which reaches inland area crosses other coastal plain cities. This is not to indicate that air pollution generated on the peninsula does not reach the inland areas, but rather that the impact is estimated to be less in comparison to other coastal cities. Further development creating additional sources of air pollution on the peninsula would further degrade inland air quality. Conversely, under Santa Ana wind conditions, the cumulative air pollution phenomena generated within the inland Los Angeles Basin cities impact the peninsula heavily (although infrequently). This occurs seasonally in fall and winter, and lasts a relatively short time.

Geotechnical Factors

The Palos Verdes Peninsula is a rugged area that is underlain chiefly by folded sedimentary rocks of the Miocene Monterey Formation. Weak layers exist within these bedded rocks, and many massive ground failures (landslides) have taken place on the Peninsula during Holocene and late Pleistocene geologic time. The locations of these existing slides, some of which have horizontal dimensions of thousands of feet, are known from previous mapping (Vonder Linden and Jahns). Only one of the very large landslides, the Portuguese Bend Landslide, is now active; others, however range from masses that may well be on the verge of renewed failure to some very old landslides that probably are quite stable and may be suitable for some types of development.

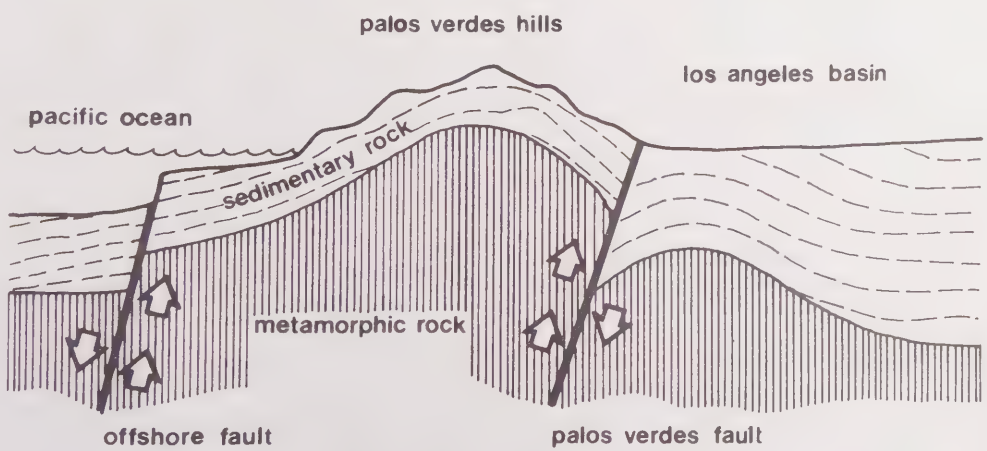
As a consequence of these geologic conditions, existing and potential slope stability must be recognized as a prime consideration in determining land use within the City. Although some types of limited development would be possible within certain of the old landslide areas, detailed geologic investigations would be necessary to demonstrate the required degree of stability. Appropriate geologic investigations should also precede development of any "non-landslide" area of the City, as new ground failure could well be triggered by man's activities in some areas.

Topography

The frequency and location of steep slopes have traditionally constrained urban development on the Palos Verdes Peninsula where they have contributed to difficulties in developing access, utility service, and site improvements. Within Rancho Palos Verdes, a large portion of the City's area consists of steeply sloping land. (Slope is usually expressed by a percentage figure equal to the number of feet of rise per 100 feet of horizontal distance). Lands with average slopes of 10% or less are considered to be flat to rolling and are most easily developed and generally the first lands to be developed. This pattern of development is apparent in most areas of urban development. Lands of 10% to 25% topography are hilly but construction on this type of terrain is relatively common. Slopes between 25% and 35% become steep and costs of mass construction begins to increase substantially. Development within this area is often associated with extensive adverse environmental impact, problems of access, maintenance and appearance. Steeper slopes within this category are generally more suitable for custom house sites and more innovative design solutions. Slopes above 35% are considered as extreme, and development is not, under all but the most unusual and individual circumstances, economically feasible. Within the City, 40% to 50% of all land area would fall into the category of slopes of approximately 25% and above. (See Figure 5)

Geologic Conditions

The Palos Verdes Peninsula is underlain by a sequence of middle Miocene and younger bedded sedimentary rocks that are draped anticlinally over a core of Mesozoic schist "basement rocks". The structure is locally complicated by smaller-scale folding and both the schist and sedimentary rocks have been intruded by irregular masses of basaltic volcanic rocks. This entire block has been uplifted by movement on two sub-parallel bounding faults, the Palos Verdes fault on the northeast and the San Pedro fault offshore on the southwest. (See Figure 6) A series of marine terrace benches has been developed across the rocks of the Peninsula during late Pleistocene and Holocene geologic time (the last few hundred thousand years) and both sandy marine terrace deposits and overlying deposits of landward origin now occupy some of these benches. The landscape in parts of this area has also been significantly modified by the movement of massive landslides during the time interval between formation of the oldest terraces and the present.



geologic section
figure 6

slope analysis
figure 5

rancho palos verdes

The schist, known as the Catalina Schist, crops out only in a small area on the north slope of the Peninsula. Basaltic rocks are exposed in several areas and terrace deposits (while they underlie much greater areas than the two previously mentioned units) are present in only a small fraction of the total area and are relatively thin (a few tens of feet thick). By far the most widely exposed rocks and the most significant in terms of slope stability are the marine strats of the Miocene Monterey Formation.

The Monterey Formation is more than 2000 feet thick on the Palos Verdes Peninsula. It has been divided into three members on the basis of rock type: the Altamira Shale, the Valmonte Diatomite, and the Malaga Mudstone (from oldest to youngest). Altamira Shale consists largely of thin-bedded shaley rocks, along with numerous layers of tuff (volcanic ash) that have been largely altered to weak clays. Consequently it is this member which is the chief causal factor in terms of slope stability and the main failure surface of most landslides located within a narrow stratigraphic interval centered about the lowermost tuff bed (the Portuguese Tuff).

Most of the landslides that have occurred in the past are the result of the following factors: presence of a weak, clayey interbed and a combination of fairly steep slopes and a downslope dip of the bedding (roughly parallel to the land surface). In many instances, the bedding at the base of the incipient slide was probably exposed by a local steepening of the topography such as sea cliff or canyon wall. Other factors which may have led to the formation of landslides include the introduction of water into the subsurface (consequently weakening the clay beds) and seismic shaking (some slides may have first formed during earthquakes). The works of man have also resulted in the formation of new slides and the reactivation of old ones because of such activities as development of cut slopes in critical areas, loading of upslope areas by placement of fill, introduction of water into the ground from septic tanks, lawn watering, etc. The removal of material at the base of a slope by sea cliff erosion is also a factor in triggering new slides or reactivating existing ones.

Seismic shaking is a hazard throughout the State, including Rancho Palos Verdes, however, it is not likely that the intensity and type of shaking generated by earthquakes will vary significantly from one place to another in the City and consequently not a major factor in determining land use. It is possible that renewed movement on some existing slides could be triggered by strong seismic shaking, but this would only occur if they were in a meta-stable condition before the earthquake. There are no known active faults within the City, and rupture of the ground surface as the result of tectonic fault movement is not a planning consideration.

The four categories of slope stability, shown on Figure 7, have been developed from the landslide mapping developed by Envicom as a portion of the "Geotechnical and Public Safety Report for Cities of Rancho Palos Verdes, Rolling Hills Estates, and Rolling Hills. The significance of the slope stability categories in terms of land use planning are described here (Interpretations by Earth Sciences Associates).

Active Landslide

Areas now undergoing downslope movement; extremely unstable ground not suitable for residential development; possible use as passive recreational area, parks, area of geologic interest, etc., but unsuitable for the construction of any new permanent structures, unless the movement is stopped by some natural or man-induced forces.

Old Landslide

Area, as determined by inspection, that has experienced massive downslope movement in the past but is not now moving. Movement may be triggered again in the future by unusual rainfall, seismic shaking, man's activities (development of cut slopes, introduction of ground water), or other causes. A wide range of present stability exists within this category, ranging from areas such as the South Shore Canyon slide that exhibits fresh signs of recent movement (and may well be subject to renewed movement in the foreseeable future) to areas of very old landsliding at higher elevations that are known to have last moved more than 250,000 years ago (and are probably relatively stable at present, since much of the landslide mass has been removed by erosion). Most of these areas would not be suitable for residential development without conclusive demonstration, through detailed engineering geologic studies, that they are stable enough to accommodate both the activities of site preparation and long term human habitation.

slope stability
figure 7

Active landslide 4

Landslide area 5

Probable landslide

Source: EDAW

rancho palos verdes

Possible Landslide

Area that is suspected to be a landslide on the basis of topographic evidence. Some of these areas may prove to be stable areas that have not experienced sliding at all, or very ancient slide areas that are now fairly stable. Some of these areas may be suitable for residential development, but they would require detailed engineering geologic studies to show that they are stable enough for development and human occupancy.

Non-landslide Areas

Areas in which no natural landslides have been recognized. A wide range of existing and potential slope stability also exists within this category and new landslides could be triggered in some areas by excavation of even low cut slopes where beds dipping out of the slope are daylighted. Most of the areas, however, would not be subject to slope failures if development were carried out properly. Individual engineering geologic and soil engineering investigations should also be required for any proposed development anywhere within this area, but there is less chance of a slope stability problem than in areas of the other three categories.

There is a wide range of slope stability within three of the four categories mapped—Non-Landslide Areas; Possible Landslide Areas; and old Landslide Areas. For instance, some existing Old Landslide Areas are presently in a metastable condition and could change to Active Landslides with minor changes in the natural or man-made environment; other existing landslide areas (mainly the older ones) are now in a very stable condition and could be suitable for residential development (subject to detailed geologic investigations). This range of conditions indicates that each proposed development or other activity (irrigation of agricultural uses on a recent landslide area, for example), in all areas of the City should be clearly documented on an individual basis, with determinations of project physical feasibility made on case-by-case basis.

Sea Cliff Hazard Retreat

The Palos Verdes Peninsula continues to exist as a peninsular formation because the rocks underlying it are harder than the materials underlying adjacent reaches of coastline, and hence are more resistant to erosion by wave action. Sea cliff retreat rates in the City of Rancho Palos Verdes are probably somewhat less than the average rate for the California coastline, which is on the order of magnitude of 6 inches per year. As is the case in most stretches of coastline, a significant increment of the retreat activity takes place during heavy storms when the waves pound at the base of the sea cliff and remove material, which eventually results in a failure of a portion of the cliff. The portion of the cliff that fails may be only a thin sliver a few feet thick, or may extend back from the cliff several tens of feet or more. Some of the large Rancho Palos Verdes landslides extending back from the cliff formations for thousands of feet may have originally been triggered by erosion at the base of the sea cliff in ancient times.

The California Coastal Zone Conservation Commission (Preliminary Coastal Plan) has proposed a sea cliff hazard zone consisting of the area from the base of the cliff, extending inland to a point where a line formed by a 20-degree angle from the horizontal plane at the base of a cliff or bluff would extend out to the surface. The accompanying diagram illustrates this proposal, and the areas which would be affected within Rancho Palos Verdes are shown on the accompanying map. (Figure 9)

sea cliff erosion hazard

figure 9

Sea cliff erosion hazard 1

Source EDAW

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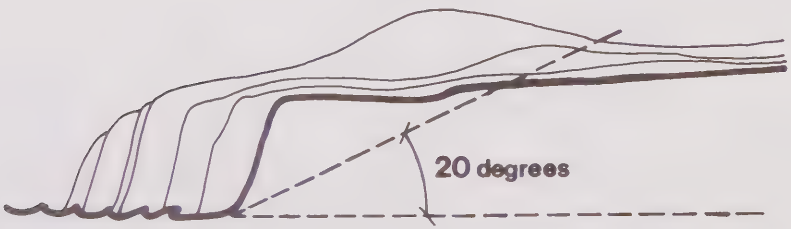
This zone has been described in this manner due to the fact that a soil mass, according to its composition, stabilizes at various angles of repose. Some structurally stable soils may have relative steep angles of repose, whereas other more unstable soils have very low angles of repose. In order to ensure that all varying conditions of sea cliff erosion hazard are taken into account, the lowest angle of repose of any soil has been used to describe this zone.

Within this zone, detailed engineering/geologic studies will be required with any proposed development to demonstrate site stability and suitability of development. No significant risks to human life caused by proposed development shall be acceptable.

The dimensions of the development setback from the sea cliff edge in any given area should take into account the local geologic conditions and be judged on an individual basis.



setback formula
figure 8

Due to the considerable amount of coastline within Rancho Palos Verdes that is of a sea cliff nature and the known landslide potentials resulting from geologic composition, it is important that this or a more refined procedure be integrated within the Specific Plan for the coastal region.

Mineral Resources

When the value of land within Rancho Palos Verdes is considered in terms of alternative land uses, there are no mineral resources present within the community which would be economically feasible for extraction.

According to Woodring, the Palos Verdes Hills (two-thirds of which are Rancho Palos Verdes) have three distinguishable subsurface components, or stratigraphy. These components of geologic time are the epochs, upper and lower Miocene, which date back about 25,000,000 years, and the period Jurassic, which dates back 180,000,000 years. To give some reference to these dates, the Miocene epoch is when mammals like dogs, cats and horses began to acquire modern characteristics and man-like apes appeared. The Jurassic period is that time in geologic history when the Sierra Nevada Mountains uplifted and primitive birds appeared.

Stratigraphy in conjunction with the subsurface geology is significant when one is exploring for valuable resources such as oil and gas. For instance, the Torrance oil field, in which stratigraphy is also characterized by upper and lower Miocene, has a subsurface geology in the sedimentary rock class. Sedimentary rocks are porous and capable of holding deposits of water, oil, and/or gas. For the most part, the subsurface geology of Rancho Palos Verdes is in the igneous rock class. Igneous rock is formed through volcanic action, making for a very hard rock which generally is not known to house deposits of gas or oil.

Resources Extracted via drilling

The first oil well was drilled by the Newton Development Company adjacent to what is now Marineland. This well reached a depth of 4,500 feet. The stratigraphy of the well consisted of Miocene to 1560 feet, turning into volcanic and finally hitting schist at 3906 feet. Schist is any of a group of metamorphic rocks containing parallel layers of flaky minerals like mica. The significance of hitting schist is that the basement or bottom of the well has been reached. Like igneous rock, metamorphic rock, which is formed by heat and pressure forces, is a hard rock not known to house oil or gas deposits.

In all, three exploratory wells were drilled in what is now Rancho Palos Verdes. The Lesco Oil Corporation well was drilled in June 1947 just south of 25th Street, and the McVicar well just west of the undedicated portion of Paseo Del Mar was drilled in 1951. All of these wells were drilled along the coast, where the Miocene layer is deepest. According to the logs filed with the State Division of Oil and Gas, none of these wells showed any indication of oil or gas.

At the time these wells were drilled, there was no method developed for taking bottom hole temperatures. Therefore, the most useful tool for assessing the geothermal potential in Rancho Palos Verdes is non-existent. However, in an interview with a representative of the State Division of Oil and Gas assigned to thermal research, it was stated that there was no indication of geothermal energy for electrical energy production on the peninsula. In supporting this opinion, it was pointed out that: (1) wells in this area have shown no indication of abnormal temperatures; (2) there are no signs of volcanic activity in the area; and (3) there are no significant hot springs in the area.

It was further pointed out that there was a significant difference between geothermal potential for office and home heating and geothermal potential for electrical energy production. The latter would require hot holes, those wells having temperatures of 212° and above. This kind of heat does not exist in the area at economical drilling depths. The former only requires temperatures above 150°F. This range of temperatures is present in many wells in the area, specifically the Torrance oil fields.

Minerals Extracted by Quarrying

From 1948 to 1958, the land in Rancho Palos Verdes was quarried for basalt, diatomaceous earth, and Palos Verdes stone. The only valuable material known to exist in Rancho Palos Verdes which has not at one time or another been commercially extracted is the asphalt which Woodring says exists at the main branches of Aqua Armaga Canyon.

Basalt is a light weight volcanic rock which is used as a component in concrete, oil well cement, and locally as a dressing for secondary roads. The three recorded basalt quarries were just north of Forrestal Drive and just south of the Flying Triangle in Rolling Hills. These quarries were operated for nearly ten years, closing their operation in 1958. The operation was run by Livingston and Graham, Inc., a representative of which recently stated that these quarries produced only basalt and not the decomposed granite which appears on some early editions of the U. S. Geological Survey maps.

There is some evidence that some sort of mining operation may have occurred in the Via Colinita area of Rancho Palos Verdes, probably basalt. The County Building and Safety Dept. has reported problems with some settling of homes in the area, which may result from mining operations that took place. Unlike oil and gas wells, mining and quarrying operations did not have to file for permits with the State, making documented support of these suspicions difficult, if not impossible, to substantiate.

The Palos Verdes Hills housed the nation's third largest diatomaceous earth quarry operation. This quarry was operated by Grefco, a subsidiary of Great Lakes Carbon. This quarry site is now the Los Angeles County Landfill. The site began to give out in 1953; the operation was moved to the Crestridge site in 1954, where it operated for almost a year.

According to Grefco, the operation was halted because the land's real estate value exceeded its worth as a diatomite quarry. Diatomaceous earth is valued between $1 and $2 per ton in the ground.

In 1972, core samples were taken on the Filiorum property just north of Narcissa in

upper Portuguese Bend. The core samples, taken for a development project that was being considered at the time, appeared to contain almost pure diatomaceous earth but were not verified. Although this area has never been commercially quarried, the high probability of a diatomaceous earth deposit in this area should be noted as a mineral resource within Rancho Palos Verdes.

Diatomaceous earth is the principal substance in many filtering operations. Primary users of diatomite are the brewing industry, sugar processors, and manufacturers of antibiotics. The material is also used as a filler in paper and plastics. In all, diatomaceous earth has over 200 uses.

The material which occurs most commonly on the Peninsula and is most generally known is Palos Verdes stone. This is a sedimentary rock which occurs throughout Rancho Palos Verdes and the Peninsula. The stone, which is used in both landscape architecture and as a decorative rock in home and office construction is found close to the surface in sporadic locations throughout the City. Whenever subdivisions were being developed that required grading, Palos Verdes Stone was often commercially exported from the construction site.

Because of the sporadic nature and the shallow depth at which the stone occurs, it is not thought to be economically feasible to commercially mine Palos Verdes Stone.

Considering the rather low market value of the various mineral resources in Rancho Palos Verdes relative to the land's value as residential or commercial real estate, it is highly unlikely that landowners would wish to utilize the land for mining or quarrying operations. Given the community's goal of maintaining a rural atmosphere, conflicts which might otherwise arise relative to desired land use are not likely to occur.

Hydrology

Water systems are integral to the total basic ecosystem affecting directly or indirectly all natural processes. Within the City, all surface waters originate from precipitation falling directly on the land and there are no major continuing streamway systems. This is a result of the peninsula's being a single hill formation creating a drainage pattern which is dispersed in a number of small watershed systems. There are no major watershed systems which are totally confined within the boundaries of the City, thus all hydrologic systems within the City are affected by runoff from other jurisdictions or affect other downstream jurisdictions which are important considerations to be taken into account in the planning process.

The drainage pattern of Rancho Palos Verdes is divided by a central ridge causing runoff to flow in several directions (Figure 10). The majority of the runoff flows directly south into the ocean. This flow is primarily within the jurisdiction of Rancho Palos Verdes with only a small portion within the City of Rolling Hills. Other runoff flows east through San Pedro, north through Rolling Hills and Rolling Hills estates, or west through Palos Verdes Estates. All of this runoff, however, eventually does flow into the ocean.

Erosion, sedimentation, and siltation are part of the natural drainage processes and are necessary for the development and transportation of sediments for beaches and replenishment, and take place throughout this overall drainage pattern.

hydrology
figure 10

Watershed boundary

Major drainage flow

Minor drainage flow

Existing channels and storm drains

Unfunded proposed storm drains

Source: EDAW

0 400' 800' 1600'

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Little downcutting of drainage canyon bottoms is currently taking place due to erosion because they are already essentially in bedrock. Erosion, however, is taking place on the canyon walls where weak rock is located or slope wash exists, and this material falls, slides, or is washed into the canyon bottoms, and thence is transported out onto the beach during periods of heavy precipitation. By far, more material is carried to the sea by movement of landslides, such as Portuguese Bend, than by stream erosion. Small amounts of material deposited on the beaches by runoff remain only until the next big storm, when it is then washed away by the larger waves and carried southeast by the longshore current. The coastal shelf around the peninsula is primarily rocky as most of the beach sand is transported to other areas along the coast.

Soils within the City tend to be rich in clay and have poor percolation characteristics. This results in high runoff. The amount of additional runoff from increased urbanization of areas adjacent to the canyons would be slight, due to these soil characteristics (Earth Sciences Associates). However, impermeable surfaces such as roads, parking lots, and buildings, reduce the amount of land area which naturally absorbs moisture, thereby accelerating runoff and increasing the amount of contaminants flowing into storm drains and subsequently the ocean.

Excessive erosion and runoff laden with pollutants both from agricultural and urban land use can have detrimental effects upon the intertidal and subtidal organisms. High silt loads in the intertidal areas could be particularly harmful to certain organisms as would insecticide and fertilizer pollution. Substantial contributors to this situation are indiscriminate use of fertilizer and insecticide upon lawns, gardens, and farmland and poor practices of grading without proper erosion control (C.C.Z.C.C., The Marine Environment). Prescribed use of organic biodegradable insecticides and fertilizers with erosion preventative measures to lessen excessive runoff and allow a greater ground absorption could alleviate the situation.

There currently exists a number of existing channels and storm drains which have been both privately and publicly developed. These have been designed to standards of the LA County Flood Control District and have been deeded to the District. Other proposed storm drains have been placed on a low priority and have not been funded for construction. As urban development occurs in these areas, the private developer may be required to construct the drains in accordance with the standards of LA County Flood Control District.

Biotic Resources

Vegetation and Wildlife Habitat

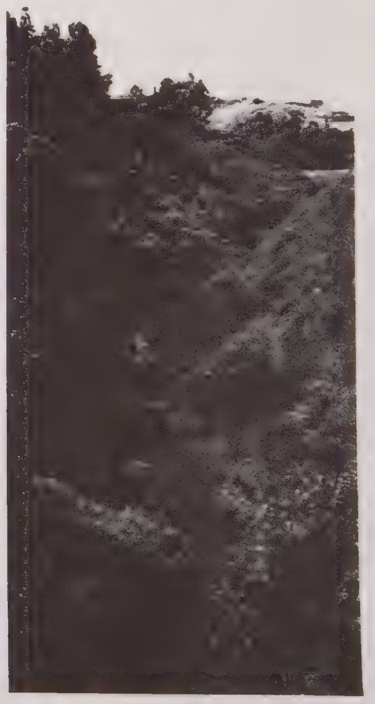
There are several types of major native vegetation communities which can be found along the Southern California Coastal Region. Of these, the Chaparral community is the only one in abundance. Fresh and salt water marshes are the rarest; natural grasslands are close to becoming extinct; and coastal strand, coastal sage scrub, riparian woodland and oak woodland are rare in undisturbed state.

The urban development which has occurred on the Peninsula has degraded and/or eliminated most of the natural areas which are considered significant natural plant communities. There are four types of vegetation communities which remain and have been identified within Rancho Palos Verdes. These are:

- Rocky Coast – tide pool, intertidal, and bluff area
- Coastal Sage Scrub – low shrubby, native vegetation along coastal slopes.
- Chaparral – shrubby, dense plant materials. Greater variety and height than coastal sage scrub.
- Grasslands – found along moister slopes and consisting of bunch grasses, flowering annuals, and herbs. Now partially invaded by weedy introduced grasses.

These are not single unmixed vegetation communities and can be found intermingled in several locations. Several areas of these vegetation communities are significant wildlife habitats. These are shown on the accompanying map (Figure 11) and are the Coastline, Portuguese Bend Landslide Area, Agua Amarga Canyon and Malaga Canyon. Of these areas, the Coastline and Portuguese Bend Landslide Area are the most significant due to the varied plant communities to be found and the lack of extensive development in adjoining areas. These have been described by the South Coast Regional Coastal Commission as being within First priority classification for preservation. The other two areas are within Second priority classification for presentation (C.C.Z.C.C., Coastal Land Environment).

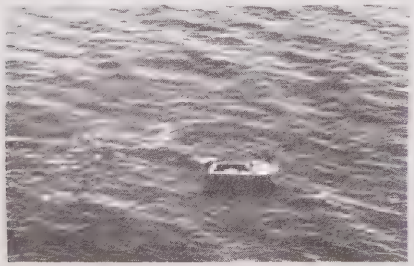
A review of species described by other studies (Gales) indicates that there does not appear to be any wildlife within the City which has been included on the State's rare and endangered species list. Of wildlife on the Peninsula, birds are by far the most abundant, while the other wildlife tends to be small rodents, skunks, rabbits, frogs, tree toads, and a variety of snakes. Fox and coyotes have also been sighted in some canyon areas but their instances are very rare. The only rare or endangered vegetation which may be found in the City is Chaetopappa lyonii (Pentachaeta lyonii). (C.C.Z.C.C., Coastal Land Environment, and Munz) This is a small herbaceous plant with yellow daisy-like flowers. The plant was first identified in 1945 at Point Fermin and is believed to grow along the slopes of Rancho Palos Verdes, although no recent confirmation of its existence has been made.



Ocean Resource

The Palos Verdes Peninsula has long been extensively recognized for its beautiful shoreline and rich, abundant marine life. The shoreline has been a major activity area for sport fisherman, commercial fishermen, hikers, skin divers, beachcombers, and students. This intense activity combined with other forces from the heavily developed Los Angeles and Orange Counties have adversely affected the ocean environment surrounding the Peninsula. In the estimation of a number of qualified sources, the thousands of species of marine organisms that inhabit the tidepools have been depleted to dangerously low numbers because of excessive use and undermanagement of the intertidal shoreline area. Some species have been eliminated from the area while others face the same threat.

The once nearly crystalline water quality has been seriously degraded by a number of water pollution factors and the lack of particle-absorbing organisms that once existed in the marine environment. The kelp beds that once surrounded the peninsula, providing food and shelter for many varieties of sea life have been reduced to a few patches of seaweed.

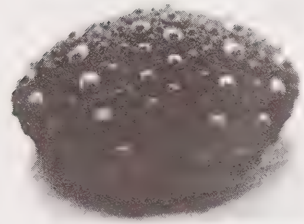


Kelp Bed

Kelp beds or forests serve as sanctuaries, nurseries, habitats and food sources for many species of marine organisms. The "biomass" (the amount of living matter per unit area) of a kelp forest is greater than that of a temperate land forest (C.C.Z.C.C., The Marine Environment) and in ecological terms may be 100 times more productive than the adjacent sand bottom (SCAG, Coastline Planning). Kelp also exerts a flattening effect on wave surges and thus serves as a stabilizing mechanism for acting against shoreline erosion — a significant factor for Rancho Palos Verdes as previously noted.

The shoreline of the peninsula once flourished with huge dense kelp beds (Macrocystis pyrifera) which have now all but disappeared with the result that much of the sea life dependent on the kelp has also disappeared. The ecologic sequence creating the decline of the kelp began with mass harvesting of the brown sea otter in the late nineteenth century. The sea urchin was the favorite food of the otter and for many years the population of sea urchins remained in check as a result of their presence. Due to the demand for sea otter pelts, fur traders practically eliminated the population. This action, combined with water pollution of the coast by sewage discharge, resulted in a situation where sea urchins thrived and grew.

Sea urchins are sea bottom dwellers and feed upon the kelp holdfasts (rootlike, anchoring structures which hold the plants in place). The feeding on the holdfasts severs the anchoring structure and the entire kelp plant washes ashore and dies.



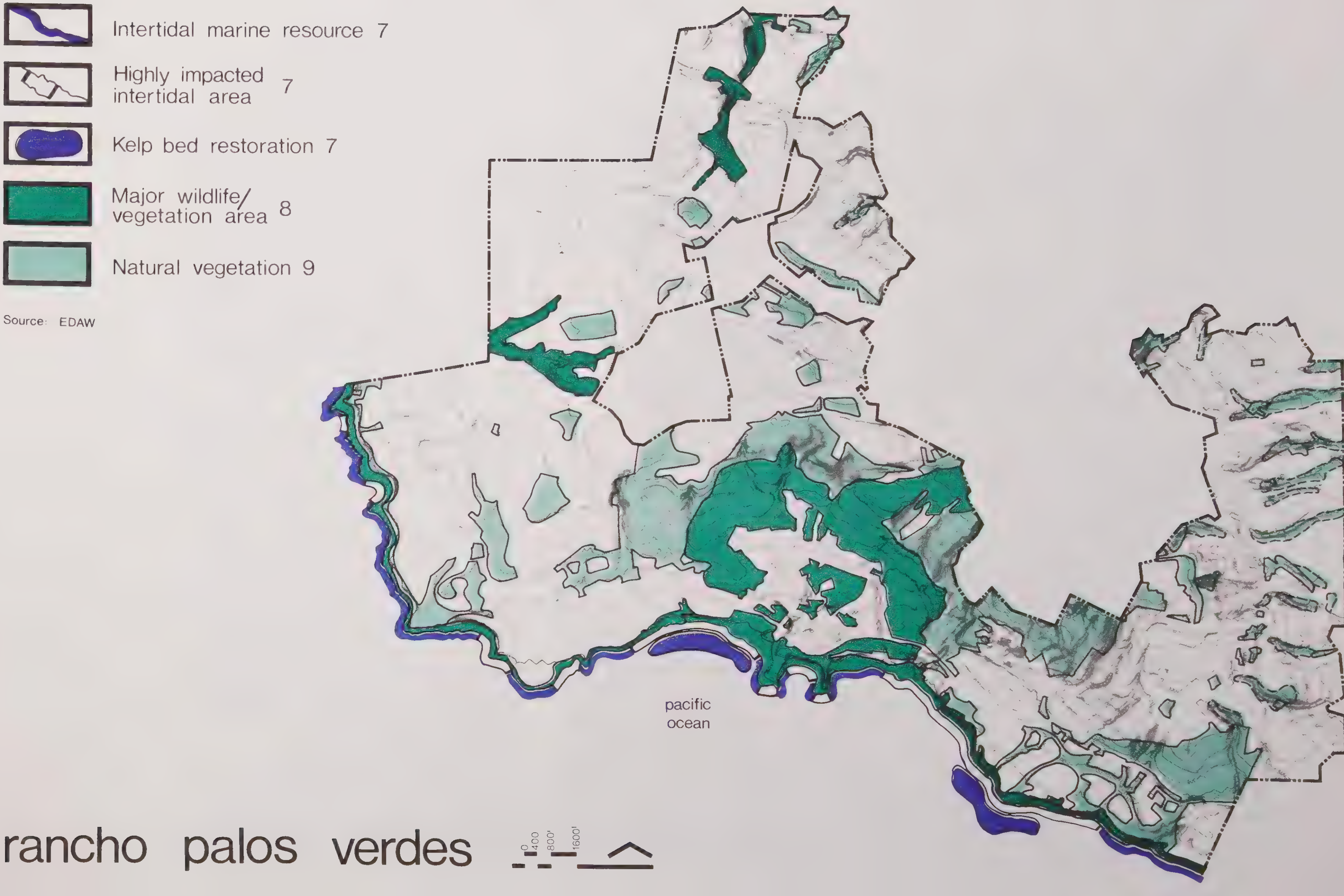
Prior to the increase in urchin population, the kelp was able to replenish itself as rapidly as it was depleted. As the sea urchin population increased, the replenishment process was not able to be maintained. The primary reason that the Palos Verdes Peninsula suffered so extensively in the reduction of kelp is due to the near proximity of two major sewage outfalls.

Along with the aesthetic and marine animal loss, the depletion of the kelp forest adversely affects industrial and commercial uses. Algin extracted from the kelp plant is used as thickeners and stabilizers in food and cosmetics, additives for medicines and components in textile products, adhesives, acoustic tiles, ceramic glazes, leather finishes, automobile polish, toothpaste, beer, seasonings, and countless other products. The entire Southern California kelp harvest is valued at approximately $3 million annually (Bowden).

Given a managed living environment, kelp is a renewable natural resource. Kelp fronds have been known to grow as much as two feet per day and eventually forming a thick blanket covering the surface of the water. Large kelp harvest barges are able to thrash

biotic resources

figure 11



rancho palos verdes

kelp two or three feet under the ocean surface and haul the cut kelp aboard for transport to processing factories. It is thought that with further research and management, kelp can be harvested continually in amounts where the kelp can replenish itself at about the same rate as harvest. (Optimum sustainable yield).

Scientific techniques to restore kelp forests have proven successful in reestablishing the Point Loma kelp bed off San Diego and aided in the restoration of kelp beds off the Orange County coast in some locations (C.C.Z.C.C., The Marine Environment). Several attempts have been made to restore the kelp beds off Palos Verdes.

The longest running and probably the most popular project was known as the Palos Verdes Underwater Restoration Project (PURP), sponsored by the Los Angeles County Fish and Game Commission, the Los Angeles County Department of Parks and Recreation, the Greater Los Angeles Council of Divers (GLACD) and the California Institute of Technology. This project is comprised of three phases: Phase I involves reduction of sea urchin population; Phase 2 involves kelp transplanting; Phase 3 involves establishment of underwater parks and marine preserves. Success of this project will not be able to be observed for a number of years since the project is still within Phase 2.

Other attempts by private clubs and organizations have been made with little or no apparent success.

Marine Life

The California State Department of Fish and Game has kept records on the harvest of fish since 1916. According to these records, the early 1950's were the last years for good fisheries production in California. Since 1950, a steady decline in harvest continued until the inshore production of fish now amounts to only 200,000 tons annually.

The Rancho Palos Verdes shoreline has been a major activity area for commercial fishing of species such as lobster, white sea bass, abalone, and crab as well as various species of rock and kelp fish. All of these species have been depleted to the point of endangerment and require an extended period of time for recovery.

Recreational fishing further adds to this depletion of the marine life. The average recreational fisherman fishes from the shore or at most a few miles offshore, and near shore species such as rockfish, flatfish, kelp and sand bass, perch, and shellfish are the most heavily affected.

Skin diving around the peninsula further depleted marine life by producing a yield of about 1/3 the amount of fish that sport fishing boat tours annually produce.

According to the South Coast Regional Commission's estimates, there are provisions for the docking of 19,463 private boats in the South Coast Region. The State of California has within its bounds 47,400 private boats. It can thus be seen that the South Coast Region is probably the most heavily used region in terms of pleasure craft. Of all boats docked in the South Coast Region, over 90 percent are located within 20 miles of Rancho Palos Verdes.

The large numbers of fishermen and skin divers associated with these pleasure craft in combination with shore fishermen and divers indicate that recreational fishermen contribute heavily to the extraction of the marine resources.

In addition to the use of marine organisms for commercial and recreation use, many institutions utilize them in a broad range of applications for bio-medical research. Certain species, very clearly exhibit different life functions unobservable in other animals. For example, the brain of the octopus is the best defined brain of any known organism (C.C.Z.C.C., The Marine Environment). Medical research into brain functions has utilized this resource.

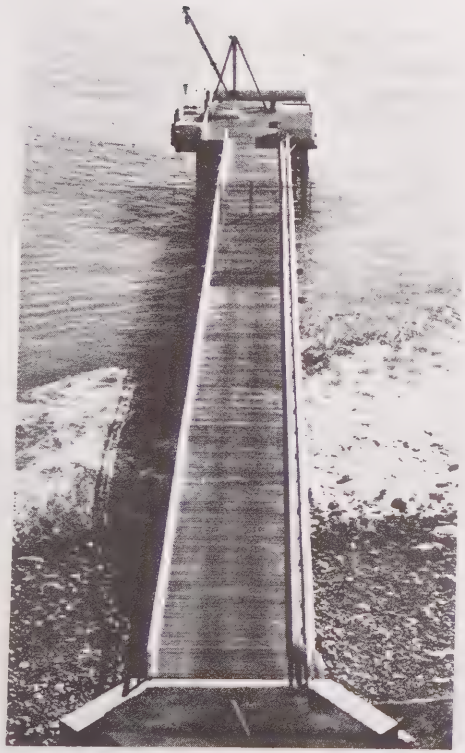
Tide pools and rocky intertidal areas are prime areas for the extraction of many of these organisms. Many schools and colleges in the area offer oceanography, marine biology, ecology, and other ocean related classes which utilize the shoreline of Rancho Palos Verdes for observation and study. Specimens are collected for study purposes and taken back to school laboratories. This research and study though further depleting the marine life, is essential in developing attitudes and management policies for proper conservation practices in the future.

Another damaging effect on tide pools and rocky intertidal areas is that of abuse by the unknowledgeable tide pool visitor. Numerous marine organisms attached themselves to the underside of rocks for protection. Many of these rocks are indiscriminantly turned over by tide pool visitors. Left in this state, the attached organisms are exposed and soon die. Visitors unwittingly wade through tide pools crushing shellfish and anything in their way. People collecting shells, starfish, and anything else that can be carried away do so and eventually discard them as trash. Picnickers discard trash, food remnants and beer cans leaving an aesthetically unpleasing environment for the next visitors. Years ago these practices went unnoticed but due to the numerous visitors to the shore during the last decade, the tidal areas of Rancho Palos Verdes have suffered severely.

As a result of the denuded tide pools and general environmental degradation, restrictions have now been placed on unwarranted collection. The California Superintendent of Public Instruction and the Department of Fish and Game have developed guidelines for conserving tide pool resources. Today, State legislation prohibits the taking of any tide pool organisms without a permit from the Department of Fish and Game. Permits are issued to only those county education offices which adopted approved plans for conservation of tide pool life and who employ a staff biologist to conduct the program. The main problem now is enforcement with those who are unware of the laws or refuse to comply with them.

To further restrict taking of marine organisms or disruption of tide pools, the State may enact legislation creating marine life reserves. Areas may be declared ecological reserves only if the State has title to the land or has other authority over the land (California Dept. of Fish and Game, Code). The State Lands Commission retains authority over those lands below mean high tide line. When tide pool areas are declared marine life preserves, the authority is transferred to the Department of Fish and Game for their administration.

The City may also elect to gain control over the tide lands (area from mean high tide line seaward 3 miles) from the State Lands Commission. In this manner the City may regulate and control uses within this area. In order to gain control, special enacting legislation would need to be passed and signed by the State Legislature and Governor. The City of Palos Verdes Estates has gained control of its tidelands in this manner (Statutes of California 1968, Chapter 316). Palos Verdes Estates has been authorized by the legislation to use the tidelands in a variety of optional uses such as construction of wharves, docks, small boat harbor, marina aquatic playground, etc. but its primary purpose is for the "establishment, preservation, restoration, improvement, or maintenance of intertidal and subtidal marine biological reserves . . . ." The City by creating this type of action would then be responsible to enact, maintain, and enforce any regulation it may choose to develop.



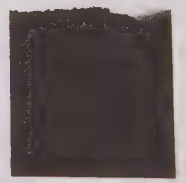
resource classification

This analysis recognizes the significance and interrelationships of the natural environmental factors in order to develop a management plan. This plan is to define and regulate development within areas which may be potentially hazardous and preserve, maintain, or improve the essential functions of physical and ecological systems, forms, or forces which may significantly affect the general health, safety, and well being of the public.

All factors of the natural environment inherently interact with one another. A change in any one factor may have a resulting series of reactions in any other factor. An example of this type of interraction is natural topography alteration resulting in change in hydrologic patterns which in turn may deprive natural vegetation of adequate irrigation causing a degradation of wildlife habitat. An analysis of the basic environmental factors as described in the previous chapters enabled an understanding allowing identification and classification of critical areas for management considerations. Two classifications evolved which delineate:

1. Areas for Consideration of Public Health and Safety. (Figure 12)

2. Areas for Preservation of Natural Resources. (Figure 13)



To clearly identify the specific component making up each classification, all components determined to be critical were given a numeric code for reference purposes. Components numbered 1 through 5 are those elements which can be considered in relation to health and safety. Numbers 6, 7, and 8 are those natural resource elements having unique values meriting consideration for preservation. Where several elements overlap, each component code number has been noted in the designation.

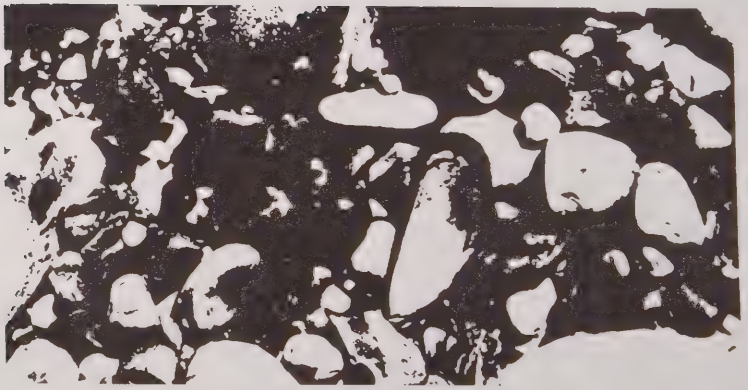
Code Designations:

Sea Cliff Erosion Hazard	1
Extreme Slope (greater than 35%)	2
High Slope (between 25% to 35%)	3
Active Landslide	4
Old Landslide Area	5
Hydrologic Factors	6
Marine Resource	7
Wildlife Habitats	8
Other Natural Vegetation Areas	9

areas for consideration of public health and safety

This classification includes those critical areas of concern in which the natural physical environment poses a significant hazard to the well being of the public. These normally include natural hazard zones such as, unstable ground conditions, or seismic hazard.

Within Rancho Palos Verdes, the primary hazard is landslide potential. Other geotechnical information which include hazard considerations such as seismic conditions or soils, were not included because they do not vary significantly throughout the area and/or were not a factor in determining capability of an area for development. Although these factors could be considered as having possible causal effects triggering landslides, the effective hazard area would remain constant, thus negating their use here.



Areas of active landslide are not suitable for construction of most permanent structures. Areas called out as Old Landslide are generally not suitable for development, although within this area portions may have stabilized and may be acceptable upon detailed study. In order to ascertain these suitability characteristics, detailed engineering geologic studies must be performed on an individual basis according to specific development applications.

The sea cliff erosion zone has been included within this classification due to hazards associated with sea cliff retreat. Although sea cliff retreat rates in Rancho Palos Verdes are less than other areas of the State, a hazard does exist and must be recognized. The Coastal Commission proposal enables designation of lesser setback if geologic engineering studies determine specific areas are geologically stable or where adequate protective works currently exist. On the other hand, the proposal does enable designation of greater setback or total exclusion in areas of known high instability.

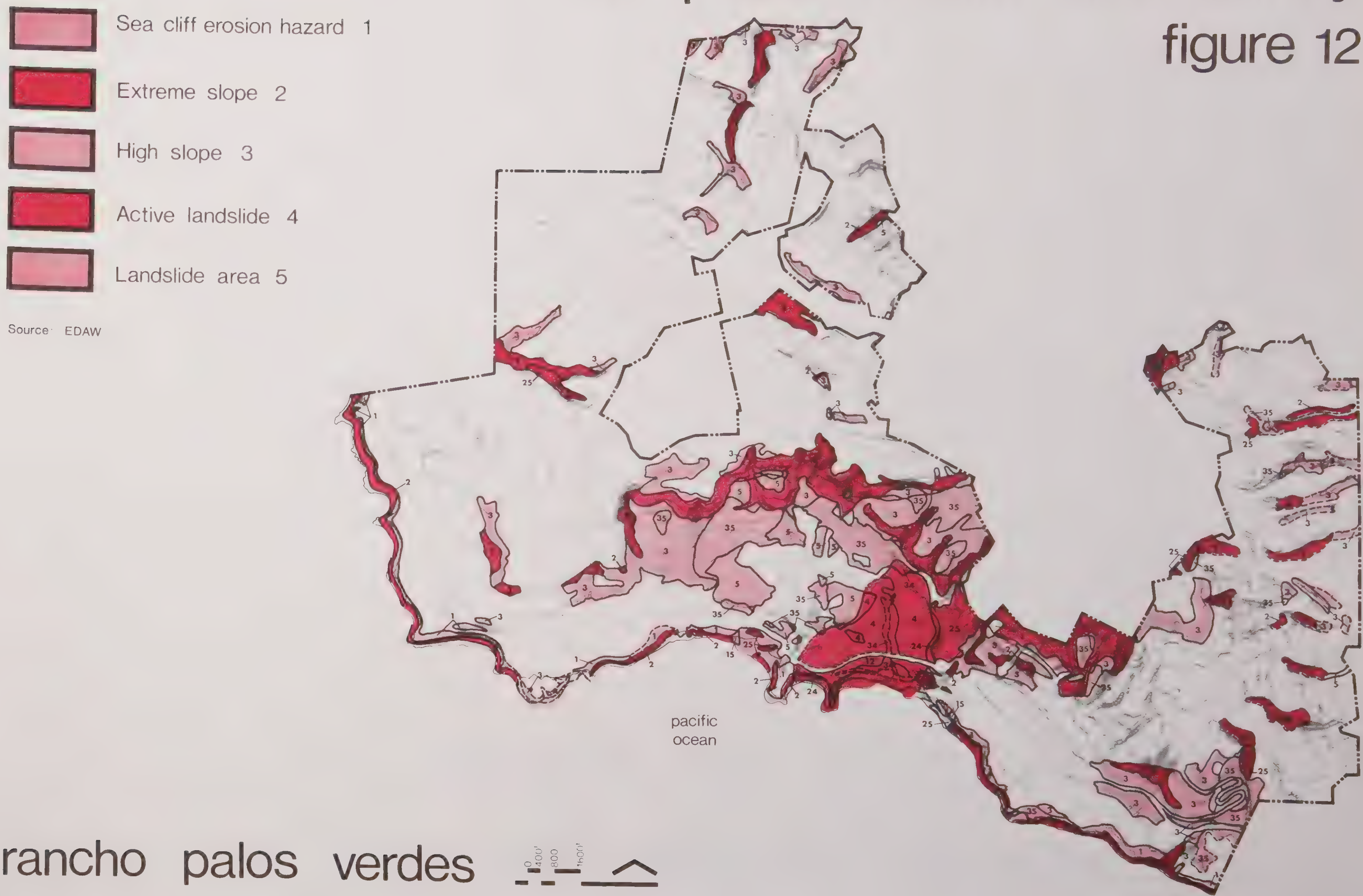
Areas of steep slope were included in two categories; extreme slopes of 35 percent and greater; and high slopes between 25 percent to 35 percent. Generally, these areas require a certain amount of topographic alteration in order to permit development which may result in increasing the probability of landslide and erosional problems. This would especially be the case in areas of known instability.

The component elements and their numeric code are as follows:

Sea Cliff Erosion Zone	1
Extreme Slope (35 Percent and Greater)	2
High Slope (25 percent — 35 percent)	3
Active Landslides	4
Old Landslide Area	5

The location of these areas may be found on Figure 12.

areas with considerations for public health and safety
figure 12



rancho palos verdes

areas for preservation of natural resources

These areas are for conservation of plant and animal life, habitats for fish and wildlife species, areas for ecological and other scientific studies, and any other unique natural resource within the City.

The intertidal marine resource is probably the most significance resource within Rancho Palos Verdes and is dependent upon proper management of the land environment as it interacts with the ocean. Currently, the marine environment offshore is seriously degraded not only from discharge of waste water treatment plants, industrial plants, and electrical generating stations but also from surface runoff, aerial fallout, and thoughtless activities of man.

There are three large waste water discharge points, all located within twenty miles of the Rancho Palos Verdes coast. The Southern California Coastal Water Research Project (SCCWRP) Study of California's coastal waters concluded that generally the ocean is able to assimilate most wastes but in the case of the Palos Verdes Peninsula, it is located so close to such intense waste water discharges, that the ocean's ability to do so is exceeded by the vast amounts of discharge. The majority of this waste water received only primary treatment but federal legislation requires that all waste water will have secondary treatment removing 80 percent to 90 percent of the oxygen using wastes from the effluent prior to July of 1977 (C.C.Z.C.C., The Marine Environment). However, it cannot be assumed that these standards can be met by the local sanitation district and it is more likely that a longer period of time may be necessary before compliance. These pollutant sources are not directly under the jurisdictional authority of Rancho Palos Verdes, but management of land use practices within the City could aid in reducing surface flow pollutants and aerial fallout such as dust, lead from motor vehicle exhaust, etc.

Surface flow runoff accumulates small amounts of petroleum residue, road dust, and nutrients and pesticides associated with urban development which impact upon the marine environment as it flows into the ocean. Increased surface drainage flow also tends to erode canyon walls at higher rates increasing sedimentation and siltation of tide pools, although a certain amount of erosion is necessary to replenish beach sand. Generally, management at the drainage courses by maintaining natural unimpeded or assisted velocities enables percolation and filtration to occur, thus alleviating some of this pollution, as well as replenishing beach sand and irrigating the natural vegetation. The high clay content of the soils in Rancho Palos Verdes, however, does not enable high amounts of percolation to occur but allows runoff to continue preventing the soil from becoming overly saturated and initiating landslides. This precariously balanced system which cleanses and filters pollutants, replenishes beach sand, irrigates natural vegetation, and returns water back to the ocean can easily be upset by changes in drainage pattern and flow characteristics.

There also exists in Rancho Palos Verdes a number of significant wildlife habitats which are directly associated with vegetation communities. These are generally found in natural canyon areas such as Agua Amarga and Malaga Canyon where wildlife thrive due to the protection and food found from the natural vegetation. Though there are no endangered or rare species of wildlife or vegetation, except for a single variety of plant material, these wildlife habitats are significant because of the wide variety and numbers of wildlife which are associated with them. Additionally, the natural vegetation of grasses and wild flowers found on the hillsides and canyons gives a unique environmental character to the City which if to be preserved, requires the maintenance of the natural drainage system and topography.

The areas for Preservation of Natural Resources Map (Figure 13) identifies critical natural resources. These are called out on the map as follows:

Hydrologic Factors	6
Marine Resource	7
Wildlife Habitats	8
Other Natural Vegetation Areas	9

areas for preservation of natural resources

figure 13

rancho palos verdes

natural environment element

The Natural Environment Element (Figure 14) is a composite of those areas requiring considerations of public health and safety, and those areas requiring preservation of natural resources, and is intended to show the manner of their relationships in combination with each other.

The various tones indicated on the plan are Resource Management (RM) Districts. The darkest tone represents those areas requiring the highest degree of management and retention of open space. Lighter tones are less restrictive. Each district is made up of various factors with associated degrees of capability or suitability for development. On the plan, the numeric code designation identifies each factor.

Example: RM 1 2 4 8 refers to a district which must consider (1) bluff setback, (2) extreme slope, (4) active landslide, and (8) wildlife habitat factors.

Any proposed use or development within these districts must respond to specific development criteria established for each factor which are described here.

RM 1 – Sea Cliff Erosion

The purpose of managing development within this district is to insure public safety from sea cliff erosion, landslide, and to maintain the physical, biological and scenic resource of particular value to the public. Any proposed development within this district should require a detail engineering/geologic study by a registered geologist, soils engineer, and/or a certified engineering geologist. The study must consider historic cliff erosion; cliff geometry; geologic conditions; landslides; nature, magnitude and periodicity of wind, waves, and current; ground and surface water conditions and variations; and all other factors affecting slope stability. The study must describe the effects of the proposed development and must conclusively prove that the proposed development conforms to existing site conditions and presents no significant risk to human life, or adverse environmental impact. This must be demonstrated to the satisfaction of the City before approval for any development may be granted.

RM 2 – Extreme Slope

The purpose of this district is to regulate use, development and alteration of land in extreme slope areas so that essential natural characteristics such as land form, vegetation and wildlife communities, scenic qualities and open space can be substantially maintained. The district further considers the risks to public safety from, earth slides and slips, erosion and attendant siltation. Grading requiring cut-slopes and embankments are potential instigators of landslide and the probability of these occurrences can be high within this district. Any use within this district should retain natural topographic condition. Practices distorting the topography of hillsides in any fashion should be prohibited. Only nonstructured uses such as passive park, trails, agriculture, etc., should be permitted. Detail engineering/ geologic study must accompany any proposal for development or use and must demonstrate to the satisfaction of the City that the proposed development or use requires no alteration of topography, significant risk to human life or significant adverse environmental impact. Due to the scale of the accompanying maps, some areas of extreme slopes may not have been plotted, just as there may be some isolated areas identified as extreme slope which are not actually 35% or greater. It is intended, however, that all slope areas will be subject to the development criteria cited for the actual slope category.

RM 3 – High Slope

High slopes are those between 25 percent and 35 percent and considerations are similar to Extreme Slope District although the lesser degree of slope enables a greater degree of use flexibility. Engineering/ geologic studies should be required to define existing soil and geologic stability and other pertinent characteristics necessary to certify stability and suitability of the proposed development. The existing character of the hills should be maintained by retaining, to the greatest extent possible natural skyline at ridges, natural drainage courses, and natural outcrops. Grading should respect natural topography and sharp geometric planes resulting from terracing or padding are to be avoided. Roads and driveways should follow natural topography to the greatest extent possible and provision for siltation and erosion control, and revegetation of all cleared and/or graded areas should be required. Increase in natural runoff quantities and velocities over natural terrain should not be permitted and drainage must be accomplished in a manner consistent with other natural systems.

RM 4 – Active Landslide

Due to the extremely unstable ground within this District, it is recommended that construction of any new permanent structures be prohibited unless the area is stabilized by some natural or man-induced forces. The area may be suitable only for certain open space uses such as passive recreational area, agriculture, area of geologic interest, etc.; however, any use must not create a situation further aggravating the condition. Irrigation or other practices which could trigger further slippage should require regulation. In any event any proposed use or development should require detail geologic and soils investigations to determine suitability or feasibility with regard to public health and safety. Existing uses and structures may be continued, transferred, sold, maintained or restored. (See Land Use Plan for further discussion of the existing residential area in the active slide.)

RM 5 – Old Landslide Area

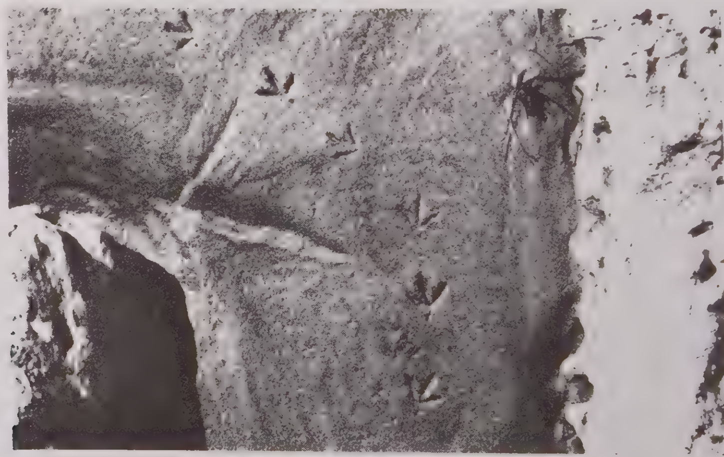
These areas have experienced downslope movement in the past, but are not currently moving. Some geologically older portions have stabilized while other portions show recent signs of movement which indicates a wide range of stability conditions. It can be assumed, however, that movement in certain areas could be again triggered in the future by unusual rainfall, seismic shaking, man's activities (development of cut slopes, introduction of ground water) or other causes and that much of the area within this district would not be suitable for most developments and uses. Those areas which are stable and potentially developable should require detailed engineering/geologic studies for any proposed development to determine stability and development suitability to the satisfaction of the City prior to granting any approvals.

RM 6 – Hydrologic Factors

It is in the public interest to maintain the optimum operation of the hydrologic cycle since it constitutes an important resource (water) and interacts with other resources (vegetation, ocean resources). The fact that all watershed systems within Rancho Palos Verdes are either influenced by or influence other jurisdictions requires that full regional cooperation be sought and agreement be developed with regard to the management of these resources. Watershed management should prohibit activities which create excessive silt or other pollutant runoff or increase canyon-wall erosion or potential for landslide. Present drainage courses are generally stable and the characteristics of these courses should remain natural. Any substantial modification to stream flow, channel configuration, or ocean outfalls should be restricted to prevent increased erosion and coastal degradation.

RM 7 – Marine Resource

The Marine Resource is probably the most significant natural resource within the City and all necessary effort should be exerted for its maintenance. The establishment of the rocky intertidal area as a marine reserve should be sought and strict enforcement be applied to all regulations concerning marine resources. As a general policy, no development within the City should be approved unless adequate measures are provided to meet pollution standards having relationship to marine resource ecosystems. A monitoring program should further be established to measure the quality of the tide pool ecosystem in order to record any deterioration and establish responsibility. Further action may then be required to regulate those developments and sources adversely impacting marine resources, both within and outside the jurisdiction of the City.



RM 8 – Wildlife Habitat

Existing wildlife habitats should remain in natural open space with vegetation and natural drainage patterns maintained to provide water and foraging material in the habitat. Any proposed development within or adjacent to wildlife habitat districts must describe the nature of the impact upon the wildlife habitat and must provide mitigation measures to fully offset the impact.

RM 9 – Natural Vegetation

The existing natural vegetation of Rancho Palos Verdes is a major component of the environmental character of the City. The open natural hillsides are visibly apparent and create an atmosphere of a hilly rural community. The wild flowers, low coastal sage scrub, chaparral, and grasslands communities should be retained wherever possible. Any proposed development within this district should seek to revegetate with native material wherever clearing of vegetation is required.

Wherever a multiple set of numeric code designations have been indicated, the corresponding development criteria would need to be applied and those criteria of a more stringent nature shall have precedence. The darkest tone on the map indicates the area of most natural environmental sensitivity and include any area where factors RM 2, 4, 6, and 7 are combined or individually designated. The total acreage for this district is 1,480 acres.

Other areas which are designated either individually or in combination with RM 8 are indicated in a middle grey tone. These are areas requiring considerations of preservation of wildlife habitats. The total acreage for this district is 680 acres.

The lightest tone represents natural resource management districts with designation of RM 1 (Sea Cliff Erosion), RM 3 (High Slope), RM 5 (Old Landslide Area), and RM 9 (Natural Vegetation). Considerations of these general conditions are necessary for any proposed development or use in this district. Within this district, special site conditions may exist enabling development to occur without creating significant adverse impact to these natural factors or endangering public health or safety. Detailed study is ncessary to demonstrate that these special site conditions exist and development is suitable before any permit may be granted for any development. The total acreage for this district is 510 acres. The total acreage of all resource management districts is 2,670 acres which represents approximately 33 percent of the total acreage of the City.

In order for those natural environmental resource management districts to be truly functional, consideration must also be given towards management policies of adjoining resource areas which may impact upon or receive effects from management policies of the City. If these adjoining resource areas are not properly managed or coordinated with the efforts of Rancho Palos Verdes, the overall effect may be negated or severely limited in its usefulness in maintaining natural environmental features of the City. On the Natural Environment Element Plan, selected areas have been shown with a dashed arrow which are outside of the City boundary. These areas should be managed in coordination with City efforts on a region-wide management program to insure the preservation of these features as well as development of an overall regional network of open space. These include Agua Amarga Canyon, Malaga Canyon, open space linkages at the crest of the Peninsula connecting open space canyons of Rolling Hills to open space canyons of the Portuguese Bend area, and several canyons at the east end of the City leading into Los Angeles City and County.

natural environment element

figure 14

Extreme slope 2
Active landslide 4
Hydrologic factors 6

Marine resource 7

Sea cliff erosion hazard 1
Wildlife habitat 8

High slope 3
Landslide area 5
Natural vegetation 9

Suggested regional open space considerations

Source: EDAW

rancho palos verdes

0 400' 800' 1600'

Policies

This section includes those policies which result from the analysis of data, goals, and recommended relationships between man and his use of the land resource, which have been the subject of this element of the General Plan.

These policies are divided into the two major categories of consideration in the Natural Environment Element, and are supplemented by general policy recommendations which apply to the entire element in its relationship to other elements such as the Land Use Plan, Fiscal Element, Socio/Cultural Element, and Urban Environment Element.

Policies for Public Health/Safety Related to the Natural Environment

It is the policy of the City to:

1 – Permit development within the Sea Cliff Erosion Area (RM 1) only if demonstrated, through detailed geologic analysis, that the design and setbacks are adequate to insure public safety and to maintain physical, biologic, and scenic resources. Due to the sensitive nature of RM 1, this area is included as an integral part of a Specific Plan District and should be more fully defined.

2 – Allow only low intensity activities within Resource Management Districts of extreme slopes (RM 2).

3 – Require any development within the Resource Management Districts of high slopes (RM 3) and old landslide area (RM 5) to perform at least one, and preferably two, independent engineering studies concerning the geo-technical, soils, and other stability factors (including seismic considerations) affecting the site.

4 – Allow no further development involving any human occupancy within the active landslide area (RM 4).

5 – Develop, as a part of any specific area planning study, a more detailed definition of the limits and composition of any RMD's related to Health and Safety, with particular reference to the active/old landslide areas, the sea cliff erosion setback, and critical extreme slope areas.

6 –Develop and enforce a grading ordinance with detailed controls and performance standards to insure both engineering standards and the appropriate topographic treatment of slopes based upon recognized site planning and landscape architecture standards.

7 – Prohibit activities which create excessive silt, pollutant runoff, increase canyon-wall erosion, or potential for landslide, within Resource Management Districts containing Hydrologic Factors (RM 6).

8 – Encourage establishment of the rocky intertidal areas as a marine reserve and strict enforcement be applied to all regulations concerning marine resources (Resource Management Districts containing Marine Resources RM 7).

9 – Encourage developments within or adjacent to wildlife habitats (RM 8) to describe the nature of the impact upon the wildlife habitat and provide mitigation measures to fully offset the impact.

10 – Encourage developments within Resource Management Districts containing Natural Vegetation (RM 9) to revegetate with native material wherever clearing of vegetation is required.

11 – Stringently regulate irrigation, natural drainage, and other water related considerations in both new development and existing uses affecting existing or potential slide areas.

12 – Provide incentives to enable unique and innovative development exceptions in areas otherwise precluding development for

health and safety reasons, if the development can establish its engineering feasibility beyond a reasonable doubt, and is otherwise compatible with the intent of the General and Specific Plans for the area.

13 – Provide a listing of toxic chemicals used as fertilizers, insecticides, herbicides, which are determined to be damaging to the environment, with particular concern for the marine environment, at current use levels within the City (based upon water sampling, etc.) to all potential major users in the City, with use criteria or prohibition clearly indicated.

14 – Maintain the existing natural vegetation of the City in its natural state to the maximum extent possible in all existing and proposed developments, to the extent commensurate with good fire protection policies and encourage the re-establishment of appropriate native plants.

15 – Require a master landscape plan for any proposed development showing the retention/enhancement of natural vegetation proposed, new complementing vegetation, and all efforts involving retention/enhancement/protection of hydrologic factors, vegetation, and wildlife factors.

16 – Require all projects with any natural resource management district factors falling within their project boundaries to deal with these areas in detail in an Environmental Impact Report.

Overall Policies

1 – Develop a resource management ordinance to accompany the zoning ordinance, grading ordinance, and any other regulatory vehicles.

2 – Develop a specific set of planning and design criteria for natural environment considerations with new development, and in upgrading existing areas for use by architects, planners, engineers, and others in a handbook/checklist form.

3 – Develop and integrate a specific review process covering the natural environment aspects of any proposed development with the normal review processes associated with proposed development.

4 – Consider in more detail natural environment factors in subsequent specific area studies as an integral part of these studies.

5 – Consider the establishment of baseline data for air quality and water quality in order to develop standards for future enforcement of regulations specific to Rancho Palos Verdes.

6 – Consider the acquisition of rights over the offshore tidelands area related to the City's coastline.

7 – Encourage study of and funding to preserve unusual flora and fauna.

socio/cultural element III

IT IS THE GOAL OF THE CITY TO PRESERVE AND PROTECT ITS CULTURAL RESOURCES AND TO PROMOTE PROGRAMS TO MEET THE SOCIAL NEEDS OF ITS CITIZENS.

cultural resources

THE CITY SHALL STIRVE TO PROTECT AND PRESERVE ALL SIGNIFICANT ARCHAEOLOGICAL, PALEONTOLOGICAL AND HISTORICAL RESOURCES WITHIN THE CITY.

Paleontological, Historical and Archaeological Resources

Background

The history of Rancho Palos Verdes goes back much farther than the days of El Rancho de los Palos Verdes. However, there are no written records of man's activities during these times, often erroneously called "pre-history." The only records we have of man and other life forms as they existed during this period is what is uncovered from archaeological sites.

Through careful excavation of archaeological middens (campsites of ancient communities), it can be learned how the previous tenants lived. Analysis of archaeological sites yields insight as to how men of earlier times related to one another, their god, and to nature. Such insight may well be the key to modern man's understanding of himself.

The importance of archaeological sites has slowly received higher esteem and government recognition. In 1966, the Federal Government enacted the National Historic Preservation Act of 1966. This law called for the protection and preservation of sites, structures, and monuments of historical significance, including archaeological sites. In 1971, Executive Order 11593 was issued which called for the "Protection and Enhancement of the Cultural Environment." However, it was not until 1973 that the Advisory Council on Historic Preservation established "Procedures for Compliance." All Federal agencies were instructed to coordinate the National Environmental Policy Act (NEPA) Section 101(B), (4) with the National Historic Preservation Act of 1966 and Executive Order 11593. This ensures compliance for all projects which would be covered under NEPA or any project performed by a Federal agency which would ordinarily be exempt from NEPA requirements.

On the state level, under the California Environmental Quality Act, CEQA, archaeological sites are to be considered as resources, and the impacts of the proposed project on that resource must be assessed. If a field investigation reveals a site, building, or structure of significance, it may qualify for inclusion in the National Register of Historic Places.

Paleontological Resources

In addition to archaeological sites, the "pre-history" of the Peninsula is also recorded in the earth in the form of fossils. Paleontology is a branch of geology which deals with the life of past geological periods, as recorded in fossil remains. The two major classes of fossils that occur on the Peninsula are Foraminifer and Mollusks. Both contain species of fauna that are marine in origin.

Because of the degree of research done in this area and their wide distribution through the Peninsula, paleontological resources are not thought to be endangered. However, should a particular site exhibit a high degree of paleontological significance, the preservation, excavation and no action options discussed below relative to archaeological sites would be applicable.

Historical Resources

Although the land which is now the City of Rancho Palos Verdes is rich in history and past cultures, the objects, sites, and structures of true historic significance are modest in number. The lighthouse at Point Vicente, which has guided sailors since 1924; Portuguese Bend, which served as a pick-up point for smuggling operations when the land was ruled by Spanish Viceroys; Villa Francesca, the estate of Frank Vanderlip, principal founder and developer of much of the Palos Verdes Peninsula; the Harden Estate; and finally, the Portuguese Bend Riding Club and stables, which serves as the hub of a social sector in the area. These sites and structures represent the major historical points in Rancho Palos Verdes.

Several other features, such as the gated entrance to upper Portuguese Bend, Wayfarer's Chapel, and Marineland are also well-known, but they are more special features and points of interest than points of historical significance, given the criteria promulgated in the National Historic Preservation Act of 1966.

Archaeological Resources

Within the incorporated boundaries of Rancho Palos Verdes, several significant archaeological sites are known to exist. In addition to these known sites, there are areas within Rancho Palos Verdes which are "probable" archaeological sites. The area around these sites should also be considered as "archaeologically sensitive."

The location of these known sites and probable sites are on file with the Environmental Services Department. To prevent vandalism or "pot hunters" from ruining these sites in their search for arrowheads, pottery or other Indian artifacts, locations of these sites are not indicated in this Plan.

The most prominent of the archaeological phenomena which occurs on the Peninsula is the middens left by the Gabrielino Indians. Indians of the ". . wider Gabrielino group occupied Los Angeles County south of the Sierra Madre, half of Orange County, and the islands of Santa Catalina and San Clemente." (Kroeber)

There are locations all along Rancho Palos Verdes' coastline where the Gabrielinos had established campsites for many years. There are also a few locations where excavation has indicated trade centers where it is speculated that the Indians from the mainland traded with the islanders for otter pelts and other goods. For these reasons, the entire coastal area in Rancho Palos Verdes should be considered as "archaeologically sensitive" and is designated with an Overlay Control District in the Plan.

In addition to the coastal area, areas which should be considered as archaeologically sensitive include the vacant land areas north and east of Narcissa in upper Portuguese Bend and south of Crest Road at Highride Road. Just north of Crest Road in Rolling Hills Estates a highly significant archaeological site has been recorded. This site contains two small components which "... may simply represent a different season of occupation by the same people who lived in the large sites along the coast, or they could have been occupied by a separate people with a different kind of ecological adaptation." (Ultrasystems). During the investigation of this site, now recorded as LAN-709, the archaeologically sensitive area south of Crest Road in Rancho Palos Verdes was discovered.

There are other areas in Rancho Palos Verdes which have archaeological significance. Many of these sites have already been impacted by construction. As a result, those few remaining undisturbed archaeological sites have an increased significance and added archaeological value in that they become the remaining, but decreasing, vestige of man's history on the Peninsula.

The City's Options

Should a pre-construction field investigation reveal a significant archaeological site, three basic options immediately present themselves. The site can be preserved, the site can be excavated, or no action to affect the fate of the site can be taken. The latter is a decision not to make any decision. Traditionally, such a policy of non-decision by the affected governmental unit has added to the rapid depletion of the nation's archaeological resource.

Preservation

Preservation of the site can be accomplished through acquisition, development controls, site design, and, to some extent, through zoning. The National Historic Preservation Act of 1966 does provide funds for property acquisition, but only where the project is performed in conjunction with a State plan for historic preservation. To date, California does not have such a plan.

Development controls and site design are also effective means of preservation. Examples of this technique are The Village Condominium and redevelopment project in Redondo Beach and, locally, what was proposed for site LAN-709 in Rolling Hills Estates, previously discussed.

In both of these cases, it was proposed that the midden areas become parks or open space areas. No grading would be done which would disturb the distribution of the artifacts which lie a few feet below the surface. This is important in that the location and context in which the artifacts are found is as important as the artifacts themselves.

This preservation technique would be even more archaeologically desirable if the land became publicly owned. This is because State law prohibits "pot hunting" on publicly owned lands, but does not deal with securing known or probable archaeological sites in private ownership.

Zoning controls can facilitate preservation if the land is zoned open space for the preservation of natural or historic resources. However, because of the legal challenge to zoning ordinances for the preservation of these resources, zoning control by itself is not the most effective technique for archaeological preservation.

Excavation

Salvage excavation of a site is the second option open when a site is being considered for development. Traditionally, excavations of a archaeological site have been rushed by the roar of an approaching bulldozer. As a result, the information extracted from the site has had to be highly selective, hence, not always complete. The cost of a salvage excavation has almost invariably been from private funding sources. The work has often been performed by college and university students. Proper excavation of a site can take from 24 hours to 24 days, depending on the size and depth of the site. To date, there are not public funding sources for archaeological salvage excavations.

No Action

As previously noted, the option to take no action has traditionally led to the loss of the particular archaeological resource. Such decisions have been based on the rationale that archaeological preservation is a civil matter and should be left to civil forces and remedies.

Vehicles for Identification and Protection of Archaeological Resources

As a checking procedure, Environmental Impact Reports can be sent to the University of California at Los Angeles, the Society for California Archaeology's (SCA) clearinghouse for this area, and to California State College at Dominguez Hills, SCA's nearest affiliate agency. SCA can also review the environmental impact report for its archaeological adequacy, based on up-to-date information of the area and expertise in the field.

Once the sites have been identified and the preservation, excavation and/or no action options have been decided, the City can use one of several vehicles to implement its decisions relative to the site. As applicable to the project, the City can make its option decision a condition of approval for granting the subdivision, the conditional use permit, or the variance sought by the project.

By following these procedures, it is hoped that all significant archaeological, paleontological and historic resources in Rancho Palos Verdes can be preserved and protected. Relative to archaeological resources, where insurmountable circumstances arise whereby some technique of preservation cannot be implemented, the City can require salvage excavation of the site so that the maximum obtainable knowledge is extracted from the site before the archaeological resource is irrevocably damaged.

Policies

It shall be the policy of the City to:

1 – Monitor the State's activities for developments which could provide funds for the acquisition, preservation, and/or maintenance of historic places and archaeological sites.

2 – Encourage the identification of archaeologically sensitive areas and sites.

3 – Require all projects for new construction, subdivisions, conditional use permits, and variances, that occur in archaeologically sensitive areas to have a special archaeological component in their Environmental Impact Reports.

4 – Forward Environmental Impact Reports to the University of California at Los Angeles, the Society for California Archaeology's (SCA) clearinghouse for this area, and to California State College at Dominguez Hills.

5 – Allow salvage excavation of the site, where some technique of preservation cannot be implemented.

6 – Actively press for Point Vicente Lighthouse to be included in the National Register of Historic Places.

current social, service, and cultural organizations

WORK TOWARD A COORDINATED PROGRAM TO AID IN MATCHING THE FACILITY NEEDS OF THE MANY AND DIVERSE GROUPS IN THE COMMUNITY WITH EXISTING AND FUTURE FACILITY RESOURCES THROUGHOUT THE CITY.

The Peninsula abounds with organizations which meet many different social needs of the residents. There are at least 200 such groups serving nearly all age groups and interests.

The only groups with permanent physical facilities are the Palos Verdes Community Arts Association, the South Coast Botanic Gardens and various churches. Some of the others rent space, including the Youth Commissions' Switchboard.

The major problem of many groups is lack of indoor and outdoor facilities for meetings and events. There is heavy use of the schools' indoor and outdoor facilities, and libraries. In addition, the cities of Rolling Hills Estates and Rancho Palos Verdes, the South Coast Botanic Garden, and two savings and loans allow limited use of their meeting rooms free or for janitorial fees. Other indoor meeting rooms are available, for a fee, at private schools, two country clubs, and private restaurants. (LWV, "Facilities"). Youth athletic organizations are particularly desperate for playing fields, presently using school fields, Rancho Palos Verdes Park, and a few school sites. There is also a lack of facilities to stage plays, concerts, etc., to adequately accommodate the attendance and performers.

Policies

It is the policy of the City to:

1 — Provide leadership in coordinating a cooperative approach to solving the need for community meetings, cultural events, and recreational facilities.

2 — Plan for a large community meeting facility in its civic center.

3 — Encourage the building of meeting facilities by private or nonprofit groups. Existing and new businesses, churches utilities, etc., should be encouraged to allow some use of their facilities by community groups.

4 — Encourage the building of playing fields for multiple use by various recreational groups on City land, school sites, and private land which has not yet been programmed for development.

social services

ENCOURAGE PROGRAMS FOR COMMUNITY INVOLVEMENT, PARTICIPATION, AND ACTION TO MINIMIZE THE SENSE OF ISOLATION AND POWERLESSNESS FELT BY MANY INDIVIDUALS IN THE COMMUNITY.

ENCOURAGE PROGRAMS FOR RECREATION, SOCIAL SERVICES, AND CULTURAL AND EDUCATIONAL ACHIEVEMENT.

ENCOURAGE A FRAMEWORK FOR INTERACTION AMONG THE FOUR CITIES OF THE PENINSULA AND BETWEEN THE PENINSULA AND ITS SURROUNDING COMMUNITIES TO SOLVE COMMON PROBLEMS.

Social services provided or coordinated at the local level by city governments have been a recent and growing concern of local government officials. Traditionally, city governments have assumed the responsibility for the planning, coordinating, and delivery of services that meet primarily the physical needs of the community, such as police protection and roads. While these physical needs are mirrored in the General Plan requirements now in effect, human or social concerns have been largely de-emphasized. Needless to say, human needs are complex, and their identification and fulfillment remain difficult due to the many and varied factors interacting in today's society. In order to address the human needs of our community and ensure that these needs are considered, human factors must be integrated into the comprehensive planning and implementation process.

Responsibility for the planning and delivery of human services in the past has largely fallen on non-local levels of government and a variety of private agencies. This has frequently resulted in considerable duplication of services, program fragmentation, and frequent waste of already limited resources. City government, in cooperation with other levels of government and with private agencies, will need to improve the assessment of local needs and the coordination of service delivery. The need for coordination is imperative.

The League of California Cities, in October, 1973, adopted a resolution as part of their Action Plan for social responsibilities of cities, encouraging cities to begin to develop social service elements as part of their General Plan.

"We all recognize, whether it was our desire or not, that all social needs of our citizens are increasingly being laid on our doorstep for solution and resolution... Cities for years have been in the social field with leisure activities, youth citizens, etc. Social services is not a new activity for cities. This area of service, however, is becoming more complex and fragmented... This being the case each city should be aware of plans relating to human services and the services that are being delivered by other agencies, public and private, to its citizens. The city should establish a means or procedure for making an input into the plans of these other agencies and for monitoring the services which are provided... Each city should prepare and adopt a social services element to its general plan. . . ."

The City of Rancho Palos Verdes is involved in the development of the community's human resources assets. The City's interest in involvement is currently reflected in the establishment of a community services position to facilitate coordination and planning in the social service area.

To reaffirm the City's commitment and concern for the human needs of its citizens, a social element is proposed to more clearly define roles and responsibility and to provide guidelines for the future in the planning and coordination of social services. Unlike other elements of the General Plan that deal with specific areas of concern, this Social Element addresses the broad concerns of human problems and the effective use of available resources in meeting those problems. Because of this, a dynamic process must be built. This process must allow the community maximum flexibility to adapt and change. Therefore, this document reflects the process as the beginning, rather than a final product.

In order to develop goals for community action and policies for implementation an assesement of existing community needs was necessary. There are various methods available for the identification and measurement of community social needs. Several of the more common approaches used by cities include the collection of statistical data, direct observation of conditions reflecting the need and through citizen participation.

The most widely used — yet the most inadequate approach, if used alone — is the collection of statistical data. The use of statistical data in defining parameters for social needs presented a special problem in Rancho Palos Verdes due to the inadequacies of the 1970 census information. Because the City was not incorporated during the period of the 1970 census and boundaries for census tracts are not contiguous with present City boundaries, the data includes extra-city population information. This results in skewed results and misinterpretations which invalidate broad generalizations.

The needs assessment technique found most effective for Rancho Palos Verdes consisted of interviewing a significant cross section of local community resource persons able to identify major human needs. This select group was most effective in generating reliable information for delineating the broad spectrum of human needs. As more detailed and reliable data is generated it will be used to update and modify the initial needs assessment information.

Policies

1 — Encourage the development and expansion of meaningful geographic groupings and subcommunity committees to act as a vehicle for improved communications with citizens, the City staff and the City Council. Individuals should be encouraged to become involved in the community through interaction, communication and participation.

2 — Act to enhance mobility within the neighborhood, mobility within the City, and on the Peninsula as a whole. Dependence solely upon the private automobile is not satisfactory.

3 — Bring the residents' needs into the City's planning process and attempt to ensure that citizens and their skills are utilized.

4 — Encourage all groups within the City to establish representation on the subcommunity committees and other civic action groups. Efforts should be made to ensure that no programs are developed that will isolate any group, and particular emphasis should be given to those who suffer from isolation due to age, health, disability and race.

5 — Encourage the use of town meetings and forums within neighborhoods and city-wide to address a variety of issues and subjects of community interest. Facilities for such events should be provided where possible, and annual city-wide events should be encouraged.

6 — Develop an on-going centralized civic information service of events, issues and services for the citizens. The City should encourage, through this service, the use of existing civic and private assistance organizations.

7 — Encourage the development of job opportunities for youth within the City. The City should actively work toward providing meaningful opportunities for older citizens so that they will choose to remain in the community.

8 — Develop recreational programs that will address the recreational needs of all citizens, both individually and in groups. This should include the development of a set of criteria which will enable the City to project and evaluate the implications of its decisions as to the long-range effectiveness of these programs.

9 — Identify, in partnership with other agencies and organizations the major human services areas and the respective roles of each agency in the planning, administration and delivery of those services.

10 — Establish, in partnership with other agencies and organizations, procedures for the better coordination of human services delivery. Specifically, the City should assume responsibility for acting as a clearing-house for up-to-date information on the current state of human services.

11 — Develop, in partnership with other agencies and organizations, mechanisms for the better coordination of human service planning efforts. Specifically, the City should assume responsibility for acting as a clearing-house for information exchange relevant to human service planning activities throughout the community.

12 — Place special emphasis on the cultural, educational, and recreational needs of individuals, families, and the community and encourage the expansion of existing programs in these areas.

13 — Encourage the South Bay, Harbor, and Peninsula cities to share in the identification of common problems and work toward the development of solutions and services of benefit to each. This should include the encouragement of dialogue between the professional city employees of the four cities.

14 — Take leadership in the formation of a four-city Peninsula commission dedicated to the expansion and strengthening of common Peninsula-city bonds and which should further serve to develop an attitude of mutual respect among communities.

urban environment element IV

IT IS THE GOAL OF THE CITY TO CAREFULLY CONTROL AND DIRECT FUTURE GROWTH TOWARDS MAKING A POSITIVE CONTRIBUTION TO ALL ELEMENTS OF THE COMMUNITY. GROWTH IN RANCHO PALOS VERDES SHOULD BE A CAUTIOUS, EVOLUTIONARY PROCESS THAT FOLLOWS A WELL CONCEIVED SET OF GENERAL GUIDELINES WHICH RESPOND TO BOTH HOLDING CAPACITY LIMITATIONS FOR THE REGION AND ENVIRONMENTAL FACTORS ON THE PENINSULA.

activity areas

IT IS THE GOAL OF THE CITY OF RANCHO PALOS VERDES TO PRESERVE AND ENHANCE THE COMMUNITY'S QUALITY LIVING ENVIRONMENT; TO ENHANCE THE VISUAL CHARACTER AND PHYSICAL QUALITY OF EXISTING NEIGHBORHOODS; AND TO ENCOURAGE THE DEVELOPMENT OF HOUSING IN A MANNER WHICH ADEQUATELY SERVES THE NEEDS OF ALL PRESENT AND FUTURE RESIDENTS OF THE COMMUNITY.

THE CITY SHALL DISCOURAGE INDUSTRIAL AND MAJOR COMMERCIAL ACTIVITIES DUE TO THE TERRAIN AND ENVIRONMENTAL CHARACTERISTICS OF THE CITY. COMMERCIAL DEVELOPMENT SHALL BE CAREFULLY AND STRICTLY CONTROLLED, AND LIMITED TO CONSIDERATION OF CONVENIENCE OR NEIGHBORHOOD SERVICE FACILITIES.

THE CITY SHALL ENCOURAGE THE DEVELOPMENT OF INSTITUTIONAL FACILITIES TO SERVE THE POLITICAL, SOCIAL, AND CULTURAL NEEDS OF ITS CITIZENS.

THE CITY SHALL ENDEAVOR TO PROVIDE, DEVELOP, AND MAINTAIN RECREATIONAL FACILITIES AND PROGRAMS OF VARIOUS TYPES TO PROVIDE A VARIETY OF ACTIVITIES FOR PERSONS OF ALL AGE GROUPS AND IN ALL AREAS OF THE COMMUNITY.

AGRICULTURAL USES WITHIN THE CITY SHALL BE ENCOURAGED, SINCE THEY ARE DESIRABLE FOR RESOURCE MANAGEMENT AND OPEN SPACE.

Urban activity areas consist of sites that have been set aside for some structured use which either directly (primary activity areas) or indirectly (secondary activity areas) serve a function oriented toward urbanization. Primary activity areas are those sites where residential, commercial, industrial, recreational, or institutional activities take place. Secondary activity areas are those sites that are used in infrastructure activities which provide service to primary urban activity areas.

Since secondary activity areas were considered to be a reflection of infrastructure, they are, therefore, included in the infrastructure section of this General Plan. The following section deals with both existing and proposed primary urban activity areas.

Compatibility of Adjacent Activity Areas to Rancho Palos Verdes

In evaluating the impacts of adjacent activity areas on Rancho Palos Verdes, the major concern is compatibility of these activities with adjoining areas in the City. Compatibility is primarily reflected in use and intensity of the adjacent activities.

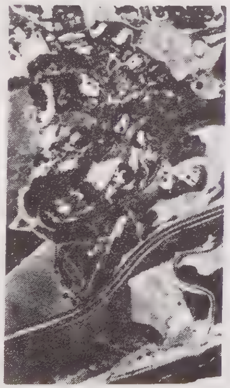
The main areas of concern to the City are two sections of Rolling Hills Estates which are nearly landlocked by Rancho Palos Verdes. The southern-most area (bounded by city boundaries on both the north and east, Crest Road to the south, and Hawthorne Boulevard on the west) contains existing condominiums, scientific research and development industry, a garden nursery, and large amounts of undeveloped land, a portion of which is presently in agricultural use. These existing activities have been planned and developed in a manner which is generally compatible with surrounding activities in Rancho Palos Verdes. Rolling Hills Estates' General Plan for this area indicates that presently vacant lands will be devoted to commercial and residential activities. The proposed residential area will be developed at a density of 2 dwelling units per acre, which is a compatible intensity to adjacent Rancho Palos Verdes areas. The City's primary concern about this proposed residential development will lie in the treatment of Aqua Armaga Canyon. Due to the unique character of this canyon, it must be left undisturbed in order to function in its natural state, as previously described in the Natural Environment section.

There is a strong possibility for negative impacts from a proposed commercial center at the northeast corner of Crest Road and Hawthorne Boulevard. Such development should be reviewed carefully. Efforts to diminish impact loads generated by commercial activity need to be addressed in order that functional and aesthetic aspects of the Crest Road and Hawthorne Boulevard intersection be enhanced. The proposed use is also questioned in light of the existing commercial in Rancho Palos Verdes.

The northern area consists of a residential condominium development known as the Terraces, another condominium, and Peninsula Center. The major concern here is the degree of intensity to which vacant commercial lands might develop in the future. Peninsula Center gains most of its access through a circulation system which falls under the jurisdiction of Rancho Palos Verdes. It is important that in order to avoid negative impacts on Rancho Palos Verdes' circulation system, all proposed commercial activities in this area not only be compatible with existing supply streets but that they also mitigate potential negative impacts which could be incurred on adjacent residential areas.

Policy

It is the policy of the City to:
Work in conjunction with neighboring cities when development plans are submitted to either this city or the other cities which generate impacts into other jurisdictions.



Housing Activity

This portion of the General Plan provides analyses of the major urban activity within the City and fulfills the State requirements usually met through an individual housing element. Those State requirements concerning the upgrading of existing substandard or deteriorated housing areas have not been extensively dealt with in this section because the City does not have any such housing problems.

A View of Past Events Which Altered the Peninsula's Character

The first attempt to develop the Peninsula, and thus alter its primary use as an agricultural area, began in 1913, when a syndicate formed under the direction of Frank A. Vanderlip purchased the Peninsula. Plans were created for the Peninsula, which became known as the Palos Verdes Project. The Project called for three model villages to be developed, each containing its own shopping area. The proposed Project required the architectural regulation of each building. The coming of World War I generated a loss of interest by syndicate members and brought with it associated financial problems.

In 1921, E. G. Lewis spearheaded the purchase of the Peninsula for $5,000,000 ($312 per acre). The proposal was made to develop the Peninsula as one complete city under a General Plan. The plan proposed that complete development of the Peninsula would take place within three years. Management problems forced the abandonment of the overall project.

Vanderlip and Lewis then joined forces in an attempt to save the Project. Their efforts led to the formation of a new company, which purchased a portion of the Peninsula, which later became Palos Verdes Estates and Miraleste.

The plan for these areas contained four residential communities — Malaga Cove, Lunada Bay, Valmonte, and Miraleste, each with its associated small convenience center. Ninety percent of the designated lots were set aside for single-family homes. Approximately one-half of the area within Palos Verdes Estates was reserved for parklands and public right-of-ways. Architecture and landscaping were given strong consideration in controlling and preserving the future appearance of areas. Architectural style was specified to the smallest detail of exterior design. For example, roof pitch and roofing materials used on hillside structures were controlled in order to enhance vistas. An extensive landscaping program was carried out by the Olmsted brothers at the northern entrance to Palos Verdes Estates. A nursery was established in Lunada Bay, where residents could obtain landscape materials at cost, with advice as to proper landscaping procedures. This project was a reflection of concern not only for the appearance of public lands, but also of private homesites.

Implementation of the plan for these four communities was through three main tools: placement of deed restrictions on individual properties, the vesting of legal powers in an established art jury, and a community association composed of property owners, known as the Palos Verdes Homeowners Association.

Housing began to appear within Palos Verdes Estates in early 1924. Each house was individually designed to blend with the surroundings. These first units were quite small by today's standards, with floor areas of approximately 1,000 square feet.

In 1936, the first subdivision, consisting of single family residences on very large lots, was opened on the Peninsula. This subdivision encompassed the area that later became the City of Rolling Hills.

The Depression of the 1930's had its effect on the Peninsula. During the Depression years, the Palos Verdes Homeowners Association was unable to collect maintenance assessments that were levied on property owners within Palos Verdes Estates, and the County taxes were allowed to become delinquent on public parklands. By 1938, over $33,000 was owed to Los Angeles County by the Association. The threat of the County acquiring possession of public parklands generated a movement for incorporation by Palos Verdes Estates residents. In 1939, the City of Palos Verdes Estates was formed. This event marked the first major fragmentation of the Peninsula. By this time, nearly 450 residences had been established on the Peninsula.

Kelvin Vanderlip developed a plan for the area of Portuguese Bend. This single-family development was oriented around a club, which acted as a nucleus for the small community. The area developed slowly. During the summer of 1956, a landslide area became active, which resulted in the total destruction of the club and many residences.

In 1953, Great Lakes Carbon Corporation (a mining firm) had almost exhausted a diatomaceous earth deposit on 300 acres of leased land on the Peninsula, but another rich deposit was known to exist on 165 acres on land near the crest of Palos Verdes Hills. For two years, Great Lakes Carbon Corporation endeavored to purchase this site from Frank A. Vanderlip, Jr. Finally an agreement was reached after Great Lakes Carbon Corporation had agreed to also purchase all of the controlling stock of Palos Verdes Corporation. This purchase of stock vested ownership of 7,000 acres of undeveloped land (almost all of the remaining undeveloped land on the Peninsula) in one company. Following the acquisition of Palos Verdes Corporation, Great Lakes Carbon switched its primary interest in the Peninsula from mining to development. Soon after the purchase was made, Great Lakes Carbon engaged architects and engineers to develop a planned community for their lands. The area of initial development was later incorporated into the City of Rolling Hills Estates.

Increasing pressures by developers for more intense development spurred residents of the Peninsula's first subdivision to incorporate, in order to preserve their rural atmosphere. In 1957, (the same year that Rolling Hills Estates incorporated) the City of Rolling Hills was formed.

By 1957, three cities had been formed which contained almost exclusively single-family residences, with the remaining land area still under Los Angeles County jurisdiction. A total of 6,600 residences had been built, and the development pace was escalating in both quantity and intensity. All hopes to develop the Peninsula as a single entity had been lost, with only portions of the original Palos Verdes Project (Miraleste and Palos Verdes Estates) being implemented.

Housing Trends

Palos Verdes Peninsula Housing Inventory

Table 1 presents changes in the housing inventory of Palos Verdes Peninsula communities during the period 1960 to 1973. (Data has been estimated for the area that is now Rancho Palos Verdes, since the Census data included what was still unincorporated area.) In 1960, the Peninsula contained almost exclusively single-family housing. There were a total of 7,290 dwelling units within the Peninsula, of which 3,071 were located in Rancho Palos Verdes. By 1970, total dwelling units had more than doubled to 14,987, and housing units in Rancho Palos Verdes had nearly tripled to 8,678. By 1973, total dwelling units had increased further to 16,950, and housing units in Rancho Palos Verdes had increased to 10,342.

TABLE 1

Changes in Housing Inventory
Palos Verdes Peninsula Communities — 1960-1973

	1960			1970		
	Total	Single Family(4)	Multiple Family	Total	Single Family(4)	Multiple Family
Palos Verdes Estates	2,753	2,641	112	3,975	3,734	241
Rolling Hills Estates	1,005	1,005	– –	1,766	1,710	56
Rolling Hills	461	461	– –	568	568	– –
Rancho Palos(2) Verdes	3,071	3,071	– –	8,678	7,697	981
Total(3)	7,290	7,178	112	14,987	13,709	1,278

	1973(1)			Average Number of Units Added Per Year	
	Total	Single Family(4)	Multiple Family	1960-1970	1970-1973
Palos Verdes Estates	4,143	3,862	281	122	55
Rolling Hills Estates	1,870	1,722	148	76	35
Rolling Hills	595	595	– –	11	9
Rancho Palos Verdes	10,342	8,778	1,564	561	554
Total	16,950	14,957	1,993	770	653

(1) January 1973

(2) Estimated for area that is now Rancho Palos Verdes.

(3) Does not include unincorporated area.

(4) Some multiple family units are included in these figures due to the evaluation system used.

Source: U.S. Bureau of the Census, Los Angeles County Regional Planning Commission, City of Rancho Palos Verdes Environmental Services, and Economics Research Associates.

Between 1960 and 1970, total dwelling units in the Peninsula communities increased at an average rate of 770 units per year. Of this total, the Rancho Palos Verdes area accounted for 561 units annually, or 73 percent of the total. In Rolling Hills and Rolling Hills Estates, where the housing remained primarily single-family during this period, there were modest increases, averaging 87 units annually, while the Palos Verdes Estates inventory expanded at the rate of 122 units annually. Between 1970 and 1973, dwelling unit additions on the Peninsula declined to an annual rate of 653 units. There was a significant decrease in Palos Verdes Estates and Rolling Hills Estates housing starts during this period; however, in Rancho Palos Verdes the decrease was slight — from 1960-1970 levels to 554 units annually between 1970 and 1973.

The increased construction of multiple-family units on the Palos Verdes Peninsula is apparent in the table. For the most part, multiple-family construction has occurred in Rancho Palos Verdes, with some limited development in Palos Verdes Estates and Rolling Hills Estates. The following text table shows the percentage of housing in multiple-family units during the period 1960 to 1973.

As shown, the housing inventory in Rancho Palos Verdes changes from totally single-family in 1960 to 15 percent multiple-family units by 1973. During the same period, the total inventory for neighboring Peninsula communities changed from almost exclusively single-family in 1960 to 6.5 percent multiple-family in 1973. Since 1973, additional multiple-family units have been constructed on the Peninsula in condominium projects in Rancho Palos Verdes and Rolling Hills Estates.

Multiple-Family Units as a Percent of Total Housing Inventory

	1960	1970	1973
Palos Verdes Estates, Rolling Hills Estates, and Rolling Hills	1.5%	8.5%	6.5%
Rancho Palos Verdes	-0-	11.3%	15.1%

TABLE 2

Housing Units by Tenure
Rancho Palos Verdes and the Palos Verdes Peninsula — 1970

	Rancho Palos Verdes[1]	Palos Verdes Peninsula
Owner Occupied		
Number	8,134	15,618
Percent	86.7%	87.1%
Renter Occupied		
Number	915	1,790
Percent	9.8%	10.3%
Vacant Units		
Number	332	450
Percent	3.5%	2.6%

[1]Based data for census tracts which includes portions of Rolling Hills Estates.

Source: U.S. Bureau of the Census

Table 2 indicates housing units in Rancho Palos Verdes and the Peninsula, by tenure, for 1970. Eighty-seven percent of all units were owner occupied in 1970, while 10 percent were renter occupied. A higher vacancy level is observed for Rancho Palos Verdes than for the Peninsula in 1970, due primarily to a higher level of recent building activity in Rancho Palos Verdes.

TABLE 3

Age of Housing Inventory
Rancho Palos Verdes and the Palos Verdes Peninsula — 1970

Year Built	Rancho Palos Verdes	Palos Verdes Peninsula
1969-1970	7.3%	4.4%
1965-1968	27.0	18.0
1960-1964	39.4	32.6
1950-1959	23.9	37.6
1940-1949	1.3	4.6
1939 or Earlier	1.1	2.8
Total	100.0%	100.0%
Median Year Built	1962	1959

Source: U.S. Bureau of the Census

Table 3 indicates the age of the housing stock in Rancho Palos Verdes and the Palos Verdes Peninsula as of 1970. Both Rancho Palos Verdes and the entire Peninsula are characterized by relatively new housing development, but, in general, the development in Rancho Palos Verdes is significantly newer than for the Peninsula as a whole. In Rancho Palos Verdes, 73.7 percent of the inventory was constructed during the 1960-1970 decade, while only 55 percent of the inventory for the whole Peninsula was constructed during this period. The Peninsula experienced its peak housing construction activity during the late 1950's and early 1960's, when more than 60 percent of the inventory was constructed. The lack of older structures in both the Peninsula and the City of Rancho Palos Verdes indicates a low level of replacement activity during the foreseeable future.

Building permit trends for the other three Palos Verdes Peninsula communities are shown in Table 4. Data for Rancho Palos Verdes prior to incorporation is not available. A total of 85 building permits for single-family residences were issued during the period September 1973 through April 1975. The building permit data shown in the table indicates that construction in the Peninsula communities has been primarily single-family residences. There has been occasional small multiple-family development in Palos Verdes Estates. Development in Rolling Hills has been limited exclusively to custom single-family houses on large lots. In Rolling Hills Estates, residential construction prior to 1972 was primarily single-family residences, with the exception of a 56-unit condominium development authorized in 1967 and constructed in 1968. Between January 1973 and May 1974, multiple-family permits for 388 condominium units were issued in Rolling Hills Estates

TABLE 4

Building Permits
Palos Verdes Peninsula Communities — 1960-1974

Year	Palos Verdes Estates		Rolling Hills		Rolling Hills Estates	
	Single Family	Multiple Family	Single Family	Multiple Family	Single Family	Multiple Family
1960	124	47	18	–	123	–
1961	118	17	12	1	68	–
1962	180	7	20	–	81	–
1963	134	12	11	–	64	1
1964	81	–	17	–	28	–
1965	82	–	12	–	44	–
1966	64	18	6	–	13	2
1967	71	–	4	–	22	56
1968	61	–	5	–	34	–
1969	61	–	10	–	19	–
1970	44	–	7	–	34	–
1971	63	21	7	–	36	–
1972	86	5	20	–	20	173
1973	113	26	12	–	11	144
1974(1)	67	–	2	–	5	71

(1)Through May.

Source: Security Pacific National Bank

TABLE 5

Housing Inventory Changes
in Rancho Palos Verdes — 1970-1973

	Single Family(3)	Multiple Family	Total Units
Beginning Inventory, 1970(1)	7,697	981	8,678
Units Added, 1970-1972	1,081	583	1,664
Ending Inventory, 1973(2)	8,778	1,564	10,342

(1) Census figures, April 1970.
(2) January 1973
(3) Some multiple family units are included in these figures due to the evaluation system used.

Source: Los Angeles County Regional Planning Commission, City of Rancho Palos Verdes Environmental Services, and Economics Research Associates.

Recent Housing Trends in Rancho Palos Verdes

Recent housing inventory trends in Rancho Palos Verdes are shown in Table 5 for the period 1970 to 1973. During this period, a total of 1,664 units were added to the inventory. Of this total, 583 units (35% of the additions) were multiple-family units. Most of these multiple units developed prior to 1973 were rental apartments. Since January 1973, the development of both single-family and rental apartments has slowed considerably due to a construction moratorium placed on a large portion of the City, while condominium construction has increased (with permits granted prior to incorporation).

Structural Factors

Single-Family Development

Since 1973, single-family development in Rancho Palos Verdes has been limited. Several major subdivisions were completed and sold out in 1972 and 1973, generally offering lots of 10,000 to 15,000 square feet at prices in excess of $60,000. Current prices represent further increases over those of previously constructed single-family residences in Rancho Palos Verdes. During the mid-1960's when the bulk of the single-family units were constructed, prices typically ranged from $35,000 to $50,000 (these units are currently reselling at prices in excess of $50,000).

Condominium Development

Condominium projects in the City total 1,414 units. Of this total, 396 units were constructed prior to 1973, and 1018 units were under construction or completed since 1973.

Densities of these projects range from a low of 8.5 units per acre at the large Ridgegate development, to a high of over 70 units per acre at two small projects. Overall average density for condominium projects in Rancho Palos Verdes is 13.1 units per acre. Densities at the four condominium projects in Rolling Hills Estates are lower, ranging from 6.2 units per acre at The Terraces, to 8.0 units per acre at Casas Verdes.

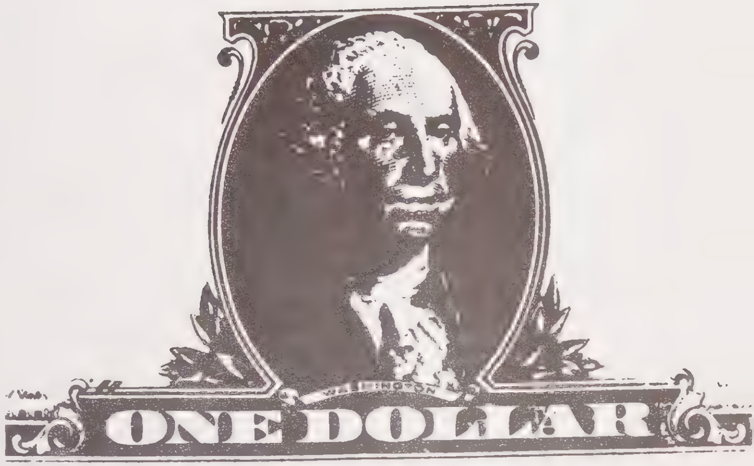
Although prices range from $36,000 (bachelor unit) to $90,000, the bulk of the units are offered in the $50,000 to $75,000 price range. Prices at the lower density Terraces project in Rolling Hills Estates range from $59,000 to $88,000. It is important to note that a majority of condominiums require a mandatory maintenance fee (a recent survey of 1,087 units showed that the average maintenance fees amounted to $58.26 per month), which further adds to their cost. Based on a 9%, 30 year mortgage, this monthly cost represents an effective addition of $7,000 to the purchase price which means that the owner of a single family home doing his own maintenance would have $7,000 more real value for the same monthly investment. The higher peninsula tax rate, compared to other areas raises the effective cost of a structure $1,000 to $3,000, due to the higher monthly tax payments.

Rental Apartment Development

The first apartment project was built in 1963, and since that time 1,313 units have been developed in the City. Of this total, eight projects totalling 894 units were built before 1970, and eight projects totalling 419 units have been completed since 1970.

Total site area for all apartment units is 37 acres, indicating a very high average density of about 35 units per acre. The densities range from around 10 units per acre at three very small projects to over 60 units per acre at four medium-sized developments of 30 to 60 units. The largest projects, those with more than 100 units, all have densities in excess of 20 units per acre.

One- and two-bedroom units are the most popular apartment size, comprising 90 percent of all units. Rental rates in Rancho Palos Verdes are generally in the $231 to $478 per month range.



Utilization of Structures

The 1970 census contains data that is aimed at the evaluation of over-crowded housing units. A unit which contains greater than 1.01 persons per room (room being defined by the Census Bureau as whole rooms used for living purposes, such as living rooms, dining rooms, kitchens, bedrooms, family rooms) was considered to contain some degree of over-crowding. Two percent of the housing units in Rancho Palos Verdes possessed some degree of over-crowding in 1970, according to this evaluation. A two percent factor can be considered quite small when compared to a majority of other areas, which averaged eight percent. This low percentage of over-crowded housing units is primarily a reflection of the large number of rooms, a median of 6.6, per housing unit.

A further breakdown of this data into census tracts reveals that no one area within the City contained a concentration of over-crowded housing units. This data further supports the conclusion that Rancho Palos Verdes does not have now, nor is expected to have in the near future, any major housing problems with existing units.

Economic Factors

Current Values of Owner Occupied Housing

According to the 1970 Census, the median value of owner occupied units in Rancho Palos Verdes was $52,649 in 1970. Since 1970, housing prices have increased substantially in the Los Angeles area and on the Peninsula. An analysis of home sales data for the year 1973 was conducted in order to determine the current values for owner occupied housing within Rancho Palos Verdes. This data, which lists home sales by address, includes both new developments and resales for all ownership housing, and represents a sample of all sales which occurred in the City during that year. The sample included 733 sales and may be utilized to estimate values of the ownership housing inventory in Rancho Palos Verdes for 1973.

The following text table presents the estimated distribution of home values based on the data as applied to a total inventory of 9,600 ownership units in the City during 1973. This estimated owner inventory includes single-family units, with the addition of condominium units completed and sold during 1973. As indicated in the table, the bulk of housing, including condominium units, is valued at prices ranging from $50,000 to $75,000. It is estimated that 69 percent of the inventory of 6,662 units are in this price range. 10.8 percent of the inventory, or 1,037 units, is estimated to be valued at less than $50,000. Since 1973, it is estimated that the average cost of housing has increased by approximately 25 percent.

Estimated Distribution of Values of Ownership Units
in Rancho Palos Verdes*

	Percent	Number of Units
Under $49,999	10.8%	1,037
$50,000-$74,999	69.4	6,662
$75,000-$99,999	13.9	1,334
Over $100,000	5.9	567
TOTAL	100.0%	9,600

*Based on F.H.A. guidelines that a family can afford a house valued at 2-1/2 times its annual income, the 1970 median house value of $52,649 required an income of $21,060.

Source: Society of Real Estate Appraisers Market Data Center, and Economics Research Associates

Current Contract Rental Rates

A survey of single-family housing rental agreements occurring between January 1974 through March 1975 is presented below. The majority of these agreements were for 3 and 4 bedroom units (85%) which indicates that most of the rentals averaged from $475 to $548 per month.

A survey of rental rates for condominiums (January 1974 to March 1975) are indicated in the following table. Sixty-two percent of the condominiums were 2 bedroom units with an average rental rate of $393 per month.

SINGLE FAMILY HOUSE RENTAL RATES

in Rancho Palos Verdes
January 1974 – March 1975

	Rent Range	Average	Median	(Count)
2 Bedroom	$325-626	$466	$498	6
3 Bedroom	350-1000	475	450	85
4 Bedroom	420-1200	548	500	72
5 Bedroom	465-1500	712	610	21

Source: Comparable Book of Multiple Listings

CONDOMINIUM RENTAL RATES

in Rancho Palos Verdes
January 1974 – March 1975

	Rent Ranges	Average	Median	(Count)
Bachelors	$215	$215	$215	1
1 Bedroom	235-350	275	260	9
2 Bedrooms	265-750	393	385	45
3 Bedrooms	350-525	448	475	14
4 Bedrooms	460-475	468	470	3

Source: Comparable Book of Multiple Listings

The following table indicates the average apartment rental rates as they existed in September 1974. This data was gathered through a survey which cataloged all of the apartment units that were supplying housing to Rancho Palos Verdes residents. Bachelor apartments, which only account for 1.3% of the apartment units, rented on the average for $160 per month, while one bedroom apartments averaged $230 per month. Two bedroom apartments represent the bulk of apartment rentals, and therefore indicate that the majority of apartment residents were paying about $300 per month. Units of three bedrooms or more (9% of the apartment units) rented for an average of $415 per month.

Rancho Palos Verdes Rental Rates
for Apartments in September 1974

	Average Rent Ranges ($/Month)	Average Rent ($/Month)
Bachelors	148 – 167	157
1 Bedroom	194 – 268	231
2 Bedroom	254 – 348	301
3+ Bedroom	352 – 478	415

Housing Obstacles

Potential Housing Pressures on the Palos Verdes Peninsula

At this point, forecast of housing on the Peninsula can be considered only a theoretical analysis, since a number of factors will influence the housing supply on the Peninsula in the future. These factors include zoning and capacity determinations necessitated by physical and environmental limitations, to be established by the City of Rancho Palos Verdes, maximum capacities or population for other Palos Verdes Peninsula communities, and other public policy decisions which direct growth.

Two factors are important to consider in a discussion of current housing conditions in Rancho Palos Verdes. These are the building moratorium and the impact of escalating costs of residential construction.

A building moratorium was invoked in Rancho Palos Verdes in January of 1974. All properties were zoned in a temporary holding classification, RA-1, one unit per acre, during this moratorium period, to continue until the General Plan and implementation ordinances for the City are adopted. Assuming a one-year start up and construction period for any new development following the removal of the moratorium, a total of three years would have elapsed where development in Rancho Palos Verdes will have been limited to completion of previously authorized projects and construction of single-family homes on existing improved sites. As a result of this three-year lapse, there may be some pent-up pressure for units in Rancho Palos Verdes.

The second important factor is the rapid increase in land costs, construction costs and home values, which has a direct impact on the type of housing which can be built on the Peninsula in the future. As witnessed by recent trends in prices, it has become increasingly less common for Peninsula builders to offer housing of any type for less than $70,000. Custom quality homes can cost more than $100,000. Since the majority of the new housing in Rancho Palos Verdes is proposed for single-family homes, efforts to maintain existing multi-family apartments and lower price range housing on the market are important in order to retain a wider economic range of housing.

Housing values are expected to continue to increase within the City because of regional demand, which is a reflection of people wanting to live in coastal regions where climate and air quality conditions are most advantageous. It is further encouraged by the Peninsula's natural character and large supply of single-family housing (in recent years, some of the single-family housing supply in coastal areas has been replaced by multi-family housing). A housing unit now costs more in the coastal areas than the same unit in other parts of Southern California.

Meeting the Needs of Low and Moderate Income Families

Two traditional approaches are available to cities in providing low and moderate income housing; the first entails initiating rent and purchase subsidy programs, the second is to designate areas for high density residential development under the General Plan (see table below for a definition of low and moderate income housing price ranges). The feasibility of the latter approach has met with failure in the past on the Peninsula. Although the city already has a higher than average percentage of multi-family units, few low income families have been attracted to the City. Housing units which have been previously constructed at a density of 70 units to the acre are presently selling well in excess of $50,000, while rental apartments at a density of 68 units per acre are renting for as much as $330 for a 2 bedroom unit.

Housing Costs Affordable by Low and Moderate Income Families

	Income Range Per Year(1)	Housing Cost Range(2)	Housing Rent Range(3)
Low Income	<$ 8,000	<$20,000	<$166.67/mo.
Moderate Income	<$15,000	<$37,500	<$312.25/mo.

(1) Range established by Southern California Association of Governments

(2) F.H.A. guideline of 2-1/2 times annual income.

(3) F.H.A. guideline 25% of gross monthly income.

It is therefore unreasonable and unrealistic to think that by increasing densities, the City could achieve a greater ratio of low-income families. This fact reflects the desire of landowners to seek the highest market price and the desire of people to live in coastal regions such as Rancho Palos Verdes where most properties have an ocean view. It therefore becomes apparent that the former approach, working in the realm of rent and purchase subsidy programs, is the most effective role for the City to take in contributing to low and moderate housing for the City.

The City is currently involved with Los Angeles County in a Housing Assistance Plan. This plan enables local communities to receive Federal financial assistance under the National Housing and Community Development Act of 1974. The primary purpose of the Housing Assistance Plan is to indicate the need for and propose general location of housing for lower income persons. The County recently submitted a preliminary plan to H.U.D. for approval. The Plan calls for 230 new and rehabilitated housing units within unincorporated areas and participating cities under 50,000 population (this would exclude the City of Torrance) located in the boundaries of Statistical Area 23 (which includes the Peninsula plus additional area). Of these 230 units, 23 would be new, 109 are existing, and 98 are proposed for rehabilitation. Primary indications are that H.U.D. may cut the total proposed units for Los Angeles County (10,250) by two-thirds. Assuming that this cut would be equally applied to both statistical areas and housing unit categories, this would mean that 7 to 8 new units would be the fair share requirement for Statistical Area 23. The actual housing unit count, however, will not be known until H.U.D. indicates what their final approval will be.

A way to enable low and moderate income families to benefit from the unique environmental aspects of the City is to provide public access to recreational lands and to encourage the preservation of open space along the shoreline and throughout the community. The desire for open space relief and the enjoyment of the City's coastal environment is evident through a recent traffic count along Palos Verdes Drives West and South, which showed an increase of 36% in traffic volume along these routes during the weekends, with a peak hour increase of as much as 84%. Use of zoning techniques, cooperation with other governmental entities, and acquisition to preserve the rural and open character of the City will be to the benefit of the entire Los Angeles area.

TABLE 6

Net Housing Unit Changes

	SA 31.2 Hermosa Beach	SA 31.3 Manhattan Beach	SA 31.1 El Segundo	31.4 Redondo Beach	16.4 & 23.2 Torrance	23.1 Palos Verdes Estates	SA 23.5 Rolling Hills Estates	SA 23.7 Rancho Palos Verdes	SA 10.12 San Pedro	SA 17.2 Long Beach
1971										
Multiples	128	26	12	1,497	1,044	21	0	N.A.	650	1,138
Singles	10	18	4	1	62	60	34	N.A.	-59	-100
TOTAL	138	44	16	1,498	1,106	81	34	N.A.	591	1,038
1972										
Multiples	568	57	40	875	205	0	0	N.A.	420	1,618
Singles	14	59	2	-4	188	54	47	N.A.	-74	-11
TOTAL	582	116	42	871	393	54	47	N.A.	346	1,607
1973										
Multiples	356	47	28	1,022	339	18	187	332**	281	1,552
Singles	70	31	3	16	170	97	19	102**	-89	137
TOTAL	426	78	31	1,038	509	115	206	434**	192	1,689
1974										
Multiples	27	13	63	382	25	18*	191	220	236	1,888
Singles	20	45	2	28	165	59*	7	122	45	-120
TOTAL	47	58	65	410	190	77	198	342	281	1,768

*Adjustment from building permits to final permits required a -13 multiple and +23 single. These are not included in the 77 units shown.

**For 6 months only -- July-December, 1973.

Employee Income Level Per Year

	Count	Percent
Less than $8,000	513	25.2
$8,000 – $14,000	812	39.8
$15,000 and up	714	35.0
TOTAL:	2,039	100.0

Place of Residency

	Count	Percent
Rancho Palos Verdes	491	24.1
Other Peninsula Cities	337	16.5
Torrance	280	13.7
Lomita	48	2.4
San Pedro	192	9.4
Other Areas	691	33.9
TOTAL:	2,039	100.0

Source: Environmental Services Dept., June 1975.

Depletion of Single Family Housing

Table 6 shows the recent trend in the building industry is leading to the depletion of single-family housing units within coastal cities. Due to Rancho Palos Verdes' unique environment and geographic location, which generates the need for low intensity development, it will be to the region's benefit for the City to promote single-family housing construction. Single-family housing units would be compatible with the community's desire to protect the environment while broadening housing type variety within the coastal area.

Providing Housing for Those Employed in the City

An inventory of four major employers (Palos Verdes Peninsula Unified School District), Northrop Corporation, Marineland, and the City of Rancho Palos Verdes) within and immediately adjacent to the City are shown below. These employers were selected because of their large employment force, which assisted in indicating employee income levels and place of residency.

Load Induced

There are two primary parameters for proposed density ranges. The first is the goals and objectives of the community for compatible treatment of undeveloped land, and the second is the selection of densities which reflect the physical factors of the Peninsula, both the natural ecosystem and infrastructure capacity. Land use determinants are further discussed in the Land Use Plan.

Community Goals

The formation of the City provided input as to the goals of the Peninsula regarding the intensities being induced through projects of the late Sixties and early Seventies. A majority of the populace felt that further development intensification under County jurisdiction would permit exorbitant density loads which would destroy the Peninsula's fragile environment, restrict regional public access to ocean environments, and thereby destroy the very features which make the Peninsula a desirable place to live.

Physical Factors

The second parameter, which defines density loading on the Peninsula, relates to the holding capacity. This can be evaluated on two main levels, the environment's compatibility with development, or vice versa, and infrastructure support capacities. As these systems are over-extended, various forms of pollution, functional problems, and environmental degradation are incurred.

Environmental

Undeveloped land areas in Rancho Palos Verdes lie within or adjacent to some of the most sensitive natural ecosystems on the Peninsula. This condition is reflective of the fact that the least physically restrained land was urbanized first, because it could be developed with the least economic burden. Much of the remaining developable areas, areas lacking extreme physical or biological conditions, were then evaluated in order to propose density and use patterns that would reflect the general sensitivity of the land. How and where these densities and use patterns are located is the primary factor in mitigating urban impacts, with secondary measures being reflected in impact controls and control districts sections.

Infrastructure

The majority of undeveloped land is located at the extremity of the Peninsula's infrastructure system. High density development would reflect a lack of regard for network impacts off the Peninsula. The Peninsula's physical relationship to South Bay communities discourages through-traffic, while forcing its populace to integrate into the South Bay circulation system at limited points. Additional pressure is generated by the existence of employment centers off the Peninsula (the neighboring City of Palos Verdes Estates states in their General Plan that 90% of their residents commute to employment centers off the Peninsula), which requires residents to commute to these centers via circulation networks in the South Bay. (Refer to transportation section for further details).

Density Ranges

1 Dwelling Unit per 10 to 20 Acres

Although this density range is not directly incorporated into the General Plan, it is ancitipated that it may be implemented in the future, if conditions arise where preservation of critical concern areas or environmentally sensitive areas develop. This density could possibly be used to preserve agricultural areas by allowing these activities to take place on large lot holdings.

1 Dwelling Unit per 5 Acres

The existence of highly sensitive plant or animal habitats which would be directly impacted by development in these areas, for example, areas where developable land had a direct effect on the watershed of a tightly defined canyon habitat, fall within this density range.

1 Dwelling Unit per Acre

Areas within this density range possess one or both of the following conditions: natural areas delineated in the Natural Environment element as possessing significant habitats (this density is also compatible with the surrounding areas and reflects the general treatment that has been used in the past under similar conditions); areas where governmenal bodies (Coastal Commission) and community organizations will possibly have input into the intensity and type of land use to take place, but at this time it is undetermined as to exact definition of this control. A Specific Plan District (see Specific Plan District section) is denoted on the latter areas in order to indicate that further input from other agencies may affect their final use, and that the City must prepare more detailed analysis and plans.

1-2 Dwelling Units per Acre

Areas containing low or moderate physical constraints with little or no natural significance were denoted within this general density range. This is the density that the original Palos Verdes Project called for and represents a density which is most compatible with the Peninsula's environment.

2-4-6-12-22 Dwelling Units per Acre

Four different density ranges are applied to areas where adjoining uses are of an intensity or relationship which deemed somewhat more intense use on adjacent vacant lands necessary. However, because these areas are already adversely impacted, much lower densities are proposed than those existing.

Applying Density Ranges to Existing Residential Areas

The above density ranges are applied to existing areas in order to provide a common base from which both existing and proposed residential density patterns could be melded. It should be noted that, although higher densities than 22 units per acre exist within the community, it is the policy of the General Plan to represent these areas under a consistent density range limit, rather than development patterns previously permitted. These high density areas will be permitted to function until they are redeveloped, at which time they will be required to reduce their site use intensity.

Total Residential Acreage

Density Ranges	Existing Residential Acres	Induced Residential Acres	Total Residential Acres
1 d.u./5 acres	–0–	80	80
1 d.u./acre	115	1,210	1,325
1-2 d.u./acre	1,330	316	1.646
2-4 d.u./acre	2,200	55	2,255
4-6 d.u./acre	35	335	70
6-12 d.u./acre	120	20	140
12-22 d.u./acre	40	–0–	60

Housing Type

	Existing Residential Units*	Induced Residential Units	Total Residential Units
Single-family	8,873	2,288	11,161
Multi-family	2,727	240	2,967
Total:	11,600	2,528	14,128

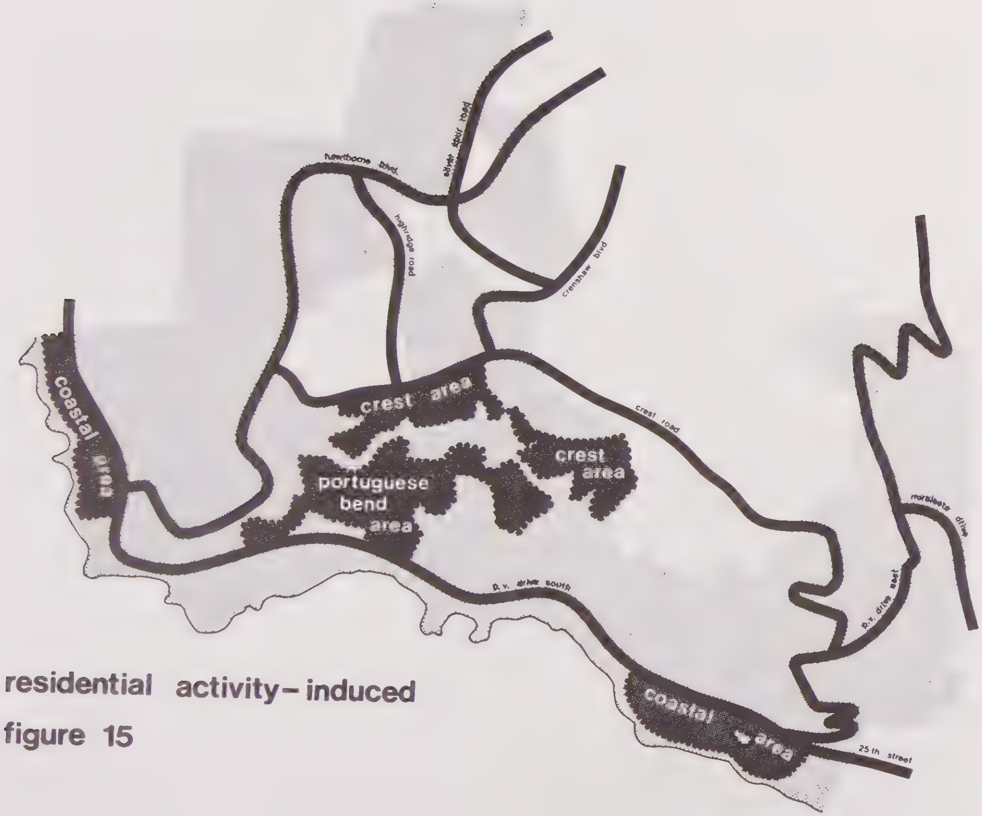
*Or under construction

Induced Residential Activity Areas

The following text table indicates that 1716 additional acres of residential activity areas will be generated by the General Plan. It is important to note that much of the developable land areas in the coastal region (that area which lies between Palos Verdes Drive and the shoreline) may be subject to change in the future because they are in a Specific Plan District.

Three main areas will provide the majority of land converted into a residential use: the coastal region, greater Portuguese Bend area, and upper land areas adjoining Crest Road. The coastal region is presently proposed to potentially provide about 450 acres of largely low-intensity residential activities, in order to limit induced urban intrusions in this area. The second area involves vacant land adjacent to upper Portuguese Bend. This area, 380 acres, is proposed at a density range compatible with the existing community. Land areas adjacent to Crest Road are proposed at one and two dwelling units per acre and include some 325 acres.

As indicated in the text table above, approximately 2,528 new units would be induced by the General Plan, of which an estimated 2,288 will be of a single family nature. These single family units could develop under a variety of development plans. This strong weighting towards single-family units is based on proposing densities which are most suited to environmental considerations. In addition it happens to reflect community goals to reduce the heavily weighted supply of multi-family units which occurred between 1970 and 1973.



residential activity-induced

figure 15

Impact Controls

Building orientation greatly affects the operational efficiency of a structure, as well as how residents relate to their surroundings. The total problem of building orientation is composed of many factors; local topography, the requirements of individual privacy, the pleasure of views, reduction of noise levels, and various climatic factors. Existing tract developments in the City have generally failed to properly assess specific site conditions. It is the intention of this Plan to generate more efficient and better site orientation in building design.

The following discussion addresses general concerns for proposed housing developments. This section is general in nature, and is intended to be further strengthened in the future.

Topography

The alteration of natural terrain, which has been so prevalent in recent years, should be minimized through the use of structural techniques which conform to the terrain rather than altering the terrain to support the structure.

Climate

Residential and commercial activities account for more than half of the electrical energy consumption in the coastal region. A large amount of this consumption could have been reduced had proper building orientation and design techniques been used in the past. The following impact controls are proposed to generate more efficient

residential structures by eliminating, as much as possible, the needless consumption of energy which takes place through improper design.

Solar

Energy demands for space heating and space cooling could be reduced through proper climatic orientation.

In areas of the City with higher temperatures, such as Miraleste, housing could be oriented to avoid the unwanted summer solar radiation and oriented in a manner that permits the units to use cooling breezes for ventilation.

Techniques such as skylights and other indirect natural lighting wells could be incorporated into housing units that will contain rooms with poor sun orientation. This would allow for general area lighting during the day, instead of relying on artificial lighting systems, which place an energy load.

Wind

The nature of wind can be both positive and negative. Prevailing wind currents that penetrate a structure during winter or cool periods will generate a negative impact. However, the utilization of prevailing air currents through structures during time periods of over-heating will lessen the need for mechanical air conditioning equipment.

Prevailing wind conditions, both on the site and through the structure, can be utilized by new projects in order to enhance the living environment, whether it be through orientation of structures, use of surroundings to create low and high pressure zones, location of inlets in high pressure zones with outlets in low pressure zones, or inlets which direct air flows to different living areas.

Views

Scenic views are one of the most valuable natural resources to man on the Peninsula. New developments will be impacting many presently undeveloped view sites. The manner in which proposed residential areas deal with this resource will have a major affect on both the appearance of the City and on how future residents relate to their surroundings.

Noise

Noise intrusion which exceeds acceptable levels (a further and more comprehensive discussion of noise is provided in the noise section of this General Plan) will adversely affect residential activities. Residential developments will have various techniques at their disposal (landscaping, insulation, structural features, etc.) in order to mitigate noise level intrusions.

Policies

It is the policy of the City to:

1 — Retain the present predominance of single-family residences found throughout the community, while continuing to maintain the existing variety of housing types.

2 — Require all new housing developed to include suitable and adequate landscaping, open space, and other design amenities to meet the community standards of environmental quality.

3 — Encourage and assist in the maintenance and improvement of all existing residential neighborhoods so as to maintain optimum local standards of housing quality and design.

4 — Prepare development codes with quality standards, but flexible to new technology and techniques of building.

5 — Support and assist in enforcement of "open housing" regulations to prohibit discrimination in the sale or rental of housing.

6 — Cooperate with County, State, and Federal agencies, monitoring all housing programs offered, and studying their desirability for implementation in the City.

7 — Cooperate with other governmental entities to explore the possibility of obtaining rent and purchase subsidies for low-income housing in the City and South Bay region.

8 — Initiate strong code enforcement programs so that scattered housing problems are solved rapidly to prevent even small-area deterioration.

9 — Discourage condominium conversion since this further limits the economic range of housing.

10 — Require all developments which propose open space to be held in private ownership to provide legal guarantees to protect these areas from further development.

11 — Control the alteration of natural terrain.

12 — Encourage energy conservation in housing design.

13 — Require proposals for development of areas which impact corridor related views to analyze the site conditions and address the preservation of such views.

14 — Prohibit encroachment on existing scenic views reasonably expected by neighboring residents.

15 — Enforce height controls to further lessen the possibility for view obstructions.

16 — Require proposed housing to show how it ensures the existence of neighboring site privacy, while simultaneously providing privacy to the occupants of the proposed units.

17 — Make an effort through zoning, cooperation with other governmental entities, and acquisition to preserve the rural and open character of the City.

18 — Allow no further development involving any human occupancy within the active landslide area.

TABLE 7

RETAIL SALES IN PALOS VERDES PENINSULA COMMUNITIES

1981

	RETAIL STORES	
	Permits	Taxable Transactions
Rancho Palos Verdes	65	$15,967,000.
Palos Verdes Estates	52	$ 8,747,000.
Rolling Hills Estates	162	$74,933,000.
Rolling Hills	5	$ 120,000.*

*Estimated based on sales reported April 1, 1981 through December 31, 1981.

Source: California State Board of Equalization.

Commercial Activity

Existing

Retail

Retail facilities in Rancho Palos Verdes are limited.

In 1981, the number of licensed retail outlets had grown to 65. Golden Cove Center remains the largest commercial center in the City. The small convenience market located along Palos Verdes Drive South has closed.

This facility totals approximately 86,000 square feet, of which approximately 66,000 square feet are devoted to retail outlets, with the remainder used for office space and service establishments.

The second largest retail facility in the City is located on Hawthorne Boulevard and contains 55,000 square feet of retail space, including a supermarket, bank, and a small department store. Other commercial centers in the City include Miraleste Plaza, with seven small retail outlets, and two small convenience markets at other locations.

The number of service stations has decreased from ten to six.

Table 7 shows retail sales in Palos Verdes Peninsula communities for the year 1973. As shown, the major share of retail activity on the Peninsula occurs in Rolling Hills Estates, which contains Peninsula Center, a sub-regional shopping center with a variety of retail outlets, including a department store. Annual retail sales for Rancho Palos Verdes were estimated at nearly $9 million for 1973 based on sales reported since incorporation in the fourth quarter of 1973 and the first quarter of 1974.

The residents of Rancho Palos Verdes generate a great deal more retail sales than are captured at the limited commercial facilities offered in the City. Table 8 presents a calculation of estimated retail sales generated by residents for 1973. With median incomes of over $25,000 in 1973 (1970 median income inflated at a 5.6 percent annual rate), total personal income is estimated at over $268 million. The Bureau of Labor Statistics has estimated that upper-income families spend approximately one-third of their gross incomes for retail items. Total retail expenditures for 1973 of residents of Rancho Palos Verdes are thus estimated at nearly $90 million. Comparison of total retail sales generated by Rancho Palos Verdes residents with actual retail sales in the City shows the amount of retail dollars flowing to other areas, including Peninsula Center, indicating that only approximately 10 percent of the retail expenditures by residents are captured at local establishments.

Office Space

Office space activities in Rancho Palos Verdes consist of 35 service establishments, including 12 real estate offices, two savings and loans, and a bank. Of these 35 businesses, 13 are located in Golden Cove Center and 12 are located at Miraleste Plaza. There is also one small manufacturing firm at Golden Cove Center.

Commercial office space is limited to real estate offices throughout the City and a small concentration of professional office space at Golden Cove Center. Golden Cove Center has approximately 15,000 square feet of office space currently.

Commercial Recreational

Commercial recreational activity in Rancho Palos Verdes consists of the large entertainment/recreation attraction of Marineland. The Marineland restaurant and motel closed during the late 1970's. The complex was sold again in 1980, this time to the Far East Hotel Corporation.

TABLE 8

Estimated Retail Sales Generated By
Residents of Rancho Palos Verdes
1973

Number of Households	10,460
Estimated Income per Household	$ 25,675
Total Personal Income	$268,560,500
Percentage Spent on Retail	33.3%
Total Retail Expenditures	$ 89,430,500

Source: U.S. Bureau of Labor Statistics and Economics Research Associates

Load Induced

Retail

The addition of two retail activity areas is proposed in order to meet expected future retail demand. The first area would involve the opening for development of a seven-acre parcel adjacent to the Golden Cove Center. The second area is not specifically located, but would introduce a new neighborhood scale commercial center in the southeastern section of the City.

Expansion of Golden Cove

Site Location

The site is bounded by Golden Cove Shopping Center to the north, Hawthorne Boulevard to the east, the lower Nike Site (which is planned for a civic center) to the south, and Palos Verdes Drive West plus a church site on the north.

Proposed Site Use

In developing the General Plan, it was recognized that both the commercial center and civic center could be organized in such a manner as to create a community focal point. The use of this site adjacent to the Golden Cove Center could be handled in a way that would generate a strong tie between commercial and civic activities, while meeting future commercial demands for the City based on convenience and need. This area should be developed in a manner which is compatible with the existing facility.

Alternative Site Considerations

Residential

The site is impacted by two elements that are non-compatible with a residential use: the existence of two major arterials on the eastern and western boundaries, and existing commercial activity to the north. The ability of mitigating measures to effectively reduce these impacts is limited because of the small parcel size.

Industrial Uses

From a functional aspect, it is highly infeasible for industrial activities to take place on the site due to small parcel size and varying topographic conditions. Such activity would probably have an adverse environmental impact.

Public Uses

The adjacency of this site to the proposed civic center diminishes its value as a public activity area due to oversupply.

Site Development

It is recommended that a redesign of the existing Golden Cove Center be conducted in conjunction with development of the adjacent site, in order to create a more cohesive shopping area. Building relationships and visual character of both buildings and parking areas should be considered in the design, as well as pedestrian access and buffering from surrounding residential uses.

Proposed New Neighborhood Center

It is proposed that within the development of a Specific Plan for the coastal region study be made of the potential need for an additional commercial facility in the southeast portion of the City.

Office Space

Additional office space would be provided for through the Golden Cove office area and development of presently vacant sites which are adjacent to Peninsula Center.

Golden Cove Office Area

It is important to note that in the expansion of Golden Cove Center some office space facilities might be added. These office space activities could develop in conjunction with the retail expansion and would, therefore, be placed under the same restraints.

Peninsula Center Area

Vacant sites oriented to Peninsula Center are proposed to develop under a light office space use.

The area located north of Silver Spur near Drybank Drive has received development approval. World Savings was recently built and five additional light professional office space developments are anticipated in the near future.

Site Location

This sloping 17-acre site lies on the north side of Silver Spur Road near Drybank Drive. Its northern boundary is defined by existing residential lots which front on Longhill Drive.

Proposed Site Use

It is intended for this site to develop into a light professional office space activity area. Access onto the site would be gained from Silver Spur Road. Due to access and site orientation, the development would relate strongly to Peninsula Center. This use should be of very light intensity due to the character of the site and to minimize traffic impacts.

Alternative Site Considerations

Residential

The site is oriented in a manner which would require a residential development to gain access from a road system which serves as the main ingress and egress route for Peninsula Center. Residential activities are considered to be a non-compatible use for this site, due to this strong interface contact between the site and Peninsula Center.

Industrial Uses

The sloping nature of the site (industrial activities require large, horizontal surfaces) and bordering residential activities make industrial activities infeasible. Such use would probably have an adverse environmental impact.

Public Use

The nature of the site's isolation from adjoining residential neighborhoods diminishes its value as a recreational site due to distance and access.

Site Development

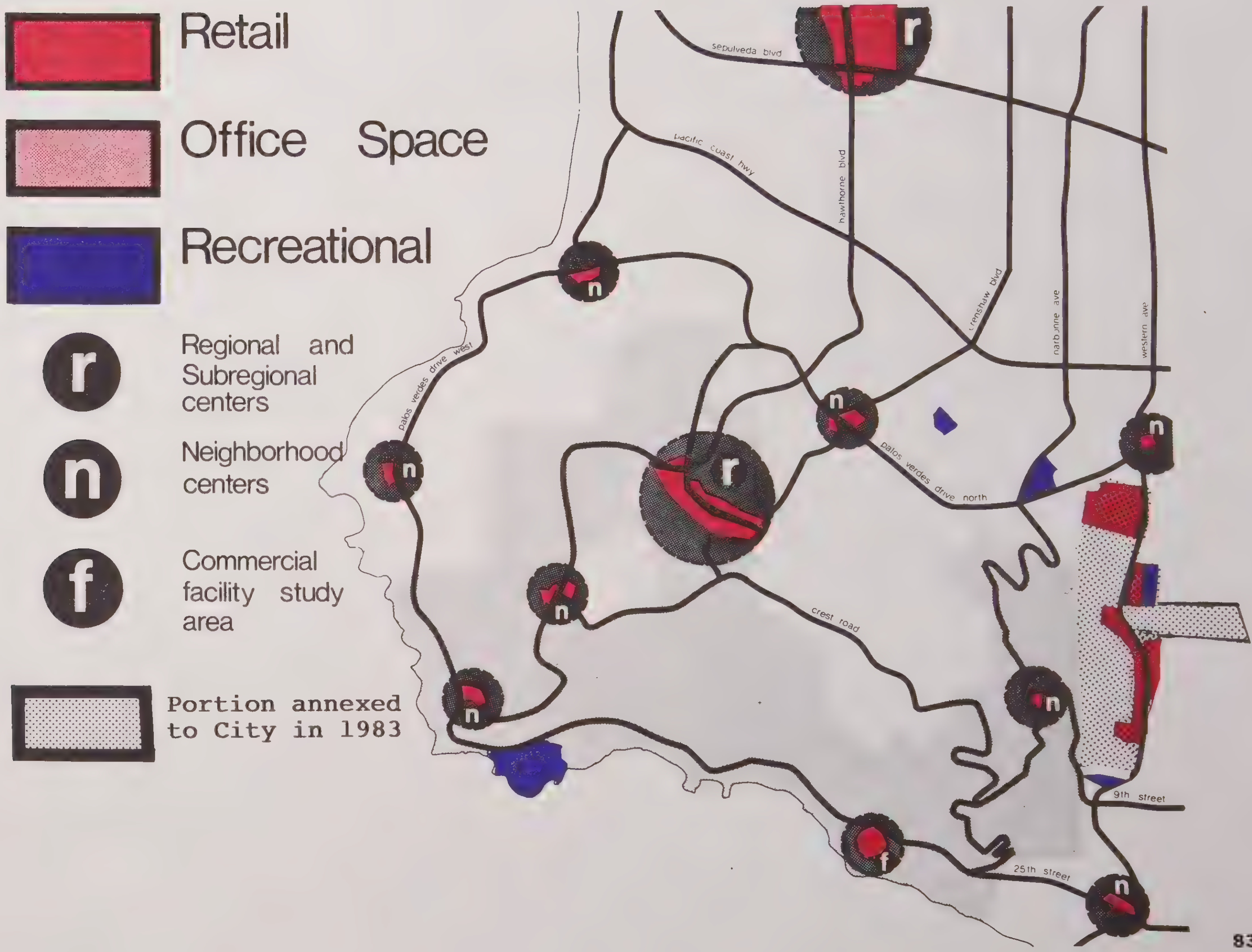
The sloping nature of this site and its proximity to existing residential activity dictates the need for a site design which adequately addresses these conditions. The following list of mitigating measures could be used.

- Site development be well buffered from the existing residential neighborhood. This buffering could best be met by leaving natural land areas abutting residential lots undeveloped rather than placement of a wall along the property line.

- Structures and other site-associated development be confined to areas which are adjacent to existing commercial activities and road access.

commercial activity

figure 16



- Both parking and service areas be well hidden from the view of adjacent residential areas and Silver Spur Road.

- Grading of the site be limited, with finish grading appearing to blend with the natural slope.

- Both structures and landscaping not encroach on existing views enjoyed by adjacent residential activity.

Commercial Recreation

The expansion of Marineland is recognized by the General Plan, subject to Policies 5 and 7 found at the end of this section.

Recently the school district declared Abalone Cove intermediate school site as surplus. The General Plan designates this 17 acre undeveloped site to be used in a commercial recreational capacity. This decision is based largely on similar site activities which are taking place to the west and south of the site.

Additional limited scale commercial recreational uses are possible for various locations throughout the City. These include equestrian, golf, tennis, and other recreational activities, as appropriate to a particular location.

Service Stations

The number of service stations has decreased from ten in 1975 to six in 1982. There is no longer an oversupply along Crest Road or Palos Verdes Drive South.

Impact Controls

The primary focus of impact controls placed on commercial activities is to mitigate both nonconforming use situations and to reduce negative alterations in the Peninsula's environment. The following policies have been incorporated to give direction in the development and expansion of commercial facilities in order to accomplish the above aims.

Policies

It is the policy of the City to:

1 — Place commercial activities under the same building orientation controls as residential activities in regard to topographic and climatic design factors.

2 — Require the commercial activity, where a commercial area would be nonconforming with adjoining activities, to provide the necessary mitigating measures, including landscaping, etc.

3 — Make special efforts to ensure safe conditions on ingress and egress routes to commercial areas for both pedestrians and vehicles.

4 — Require that scenic view disruption by commercial activities be taken into account not only in the physical design of structures and signs, but also in night lighting of exterior grounds.

5 — Require commercial sites to limit the exposure of parking and exterior service areas from the view of adjoining sites and circulation routes.

6 — Study parking areas as to the degree of use for the total area. Where a portion of the parking area is determined to only serve short-term seasonal demands, alternative surface treatments, such as grass, should be employed.

7 — Require adequate provisions be incorporated into commercial site design to reduce negative impacts on adjoining residential areas.

Industrial Activity

The majority of industrial activities within the Peninsula are located on the northern face of the hill. Rolling Hills Estates contains most of the industrial areas, these being Northrop's scientific research and development center, a portion of the County-owned landfill, and a large quarry. The remaining portion of the landfill falls within Los Angeles County's jurisdictional boundaries.

Industrial activities are nonexistent within Rancho Palos Verdes and will not be induced under the General Plan. This decision is based on the inability of the Peninsula to support traffic and site impacts that are associated with this type of activity, unless it is of the research and development type, more closely related to office uses.

Institutional Activity

Public Activities

City

The City is presently operating primarily as a contract city. Contracts with Los Angeles County include services for: sheriff, engineering, building and safety, recreation and parks, roads, and traffic.

The present City staff provides administrative and planning services.

The City has acquired the old Nike sites for n
parkland and the City Hall site. e

While the Nike Site is not in the geographic center of the City, it has the potential for becoming a strong focal point for the community. A civic center planned in accord with the expansion of Golden Cove Center, the City's largest commercial center, and ringed by parkland, would be a good focus of the City.

Other possible locations for a civic center are the upper Nike radar site near Crest and Crenshaw and the area above Peninsula Center.

Fire Facilities

Fire services are provided to the Peninsula, except Palos Verdes Estates, by Los Angeles County Fire District No. 5. The District has four stations,

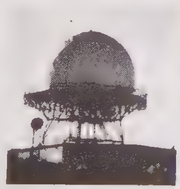
There is no longer a Fire Department facility on the Nike site.

The District's master plan indicates one additional station in the vicinity of Palos Verdes Drive South and Forrestal Drive, and relocating the Abalone Cove station to the western section of the City. The Nike Site is an excellent site for this relocation, and such a facility would be appropriate in the civic center.

The District is considering re-locating the Miraleste station.

County Facilities

The County of Los Angeles has no service facilities in the City. County-owned land includes: Los Verdes Country Club, a fishing access, and several park sites, all of which are discussed in the Recreational Activity section. The County also has a communications tower, located south of Peninsula Center.



State Facilities

There are no State facilities or land in the City.

Federal Facilities

In addition to the upper and lower Nike Sites, there are two other Federal facilities in the City. These include the Point Vicente Coast Guard Station (29 acres) and the United States Air Force Radar Station (11 acres) on San Pedro Hill.

Postal services are headquartered in Rolling Hills Estates, with only a contract station in the Golden Cove Center. There is need for a full sub-station in the City. Good potential sites are the civic center or Golden Cove Center.

Educational Activities

Public Schools

The entire Palos Verdes Peninsula is served by the Palos Verdes Peninsula Unified School District. The District presently enrolls 17,626 students in 21 schools. This includes thirteen elementary, four intermediate, one continuation and opportunity high school, and three comprehensive high schools. The District has maintained an extremely high educational level. For example, for the past four years, the high school seniors have placed at the top of the Los Angeles County list on State tests in reading, language, and math, and 90% of the graduates go to college.

There are, within the boundaries of the City, eight elementary, one intermediate, and one high school; however, attendance boundaries extend across city boundaries. The District also owns three elementary and four intermediate school sites in the City. These have been declared unused by the State, and three intermediate sites have been declared surplus by the District. The City is purchasing two of these intermediate sites for parks.

The District grew most rapidly between 1955 and 1965, when fourteen of the 21 schools were constructed. Enrollment later began to level off, but continued at the rate of 3% annually in the early 1970's.

In the early 1980's, four elementary schools were closed due to declining enrollment. La Cresta, Ladera Linda, Pedregal, and Valmonte have been closed.

School enrollment reached a high of 17,836 in 1973-74. The Palos Verdes Peninsula School District projected enrollment through 1986 shows a year-to-year decline.

With this increase and the failure of several bond elections, it was necessary for the District to acquire 115 portable classrooms. This cost comes from the operating budget. At the present time, one elementary school, Ladera Linda, is composed entirely of portable units. Point Vicente Elementary School has 39% portable classrooms, and Dapplegray Intermediate and Rolling Hills High School each 24%. While these portable units provide necessary classrooms, they overtax the fixed central facilities, such as libraries, locker rooms, eating areas, restrooms, etc.

Adding the portables has not solved the changing growth pattern problem, and the District has repeatedly re-drawn attendance boundaries. In many instances, children are required to travel rather long distances to school. The District discontinued bussing service in 1964. Presently, bus transportation is handled by a private carrier on a monthly charge to the student. Consequently, there is a large amount of automobile traffic to and from all schools.

The District's primary sources of income are property taxes and State funding. Because the Peninsula is a primarily residential community, an above average school tax rate has been necessary. While expectations are high in this highly educated community, and the citizens have generally supported tax increases in the past, the most recent revenue limit increase election was defeated. Consequently, the District is faced with cutting programs and other costs.

TABLE 9

	Permanent Capacity/ Capacity w/portables	1980-81 Enrollment	Spread Factor	1984-85 Projected Enrollment
ELEMENTARY (K-5):				
Lunada Bay *Mira Catalina *Miraleste Montemalaga *Point Vicente Rancho Vista *Silver Spur *Soleado *Vista Grande	5042/5647	4081	.723	3528
INTERMEDIATE (6-8):				
Dapplegray Malaga Cove Margate *Ridgegate	3798/4911	3427	.698	2618
HIGH SCHOOL (9-12):				
*Miraleste Palos Verdes Rolling Hills	5580/6613	5838	.867	5145
TOTAL:	14444/17291	13346	.772	11291

*Schools located in Rancho Palos Verdes
Source: P.V.P. School District, 2/81.

The greatest population increase will be in Rancho Palos Verdes, and the City must work closely with the District in planning, projections, and school needs. While the Plan does not propose the densities previously proposed by the County, there will be need for either additional schools and/or expansion of existing facilities. It is concluded that, at minimum, the community is faced with continual enrollment boundary changes.

The conditions which currently exist at those schools which serve or might serve Rancho Palos Verdes children are indicated in Table 9.

When comparing capacities and enrollments, it is necessary to emphasize that neither the existing population nor projected population will produce a pupil population which is neatly grouped into the "proper class sizes." For example, one attendance area may not produce three classrooms of second graders, i.e. 90 pupils (3 x 30 pupils/classroom). It may produce 75 second graders, which could mean three rooms of 25 each, making the school appear under-enrolled, or two rooms of 37-(1/2), overcrowding the rooms. Elementary schools are particularly prone to this phenomenon because of the greater breakdown of class type by age. One educational technique which is used to help alleviate this problem is grouping of two or more age levels. At other school levels, the problem is manifested in distribution of specialized class sizes. For example, a Latin class may have only 20 pupils, while a typing class may have 70 pupils. Because of the larger numbers of pupils, however, the totals tend to even out. This is evidenced in Table 9 in the "class distribution spread factor", which indicates that elementary schools have a factor of .846 of existing theoretical capacity, intermediate .914, and high school 1.005.

The District's standards for school sizes are:

	Enrollment	Site Size
Elementary	600	7 ac.
Intermediate	1,000	14 ac.
High School	2,000	32 ac.

In the Long-range Comprehensive Master Plan published by the District in 1973, projections were made for classroom needs for 1974 to 1979, based on the densities then projected for the Peninsula. The need was projected for a total of 50 additional classrooms at the elementary level, four less at the intermediate level, and 22 additional at the high school level. This projection was for classrooms, in addition to using the portables which would have been moved from school to school as enrollments changed. The four new schools projected during that five year period would probably have consisted primarily of portable classrooms. A total of 49 additional classrooms was projected between 1979 and maturation (1984-85), a grand total additional classrooms of 117. The projected enrollment at maturation was 21,528.

Based on discussions with representatives of the District and the General Plan densities and projected school population, the following school needs are projected:

	Pupils	Classrooms
Elementary @ 30.6 pupils/room	1070	35
Intermediate @ 33.6 pupils/room	673	20
High School @ 32.4 pupils/room	1078	33
TOTAL:	2821	88

TABLE 10

Density	Acres	D.U.*	K-5		6-8		9-12		Total Pupils
			Pupils/D.U.	Pupils	Pupils/D.U.	Pupils	Pupils/D.U.	Pupils	
≤1/5	65	13	.5	7	.3	4	.5	7	18
≤1	1205	1140	.5	570	.3	342	.5	570	1482
1-2	296	509	.5	255	.3	153	.5	255	663
2-4	80	296	.5	148	.3	89	.5	148	385
4-6	11	63	.1	6	.2	13	.15	9	28
6-12	2	25	.04	1	.03	1	.03	1	3
TOTAL		2046		987		602		990	2579

*See revised Table 16

This projection is based on the data and compilation contained in Table 10.

The greatest impact on the schools would arise from very rapid growth. This impact can be mitigated by a slower growth rate and by very careful analysis of development proposals. Based on the residential units induced by the Plan, the following text table indicates three different growth rates and the generalized total projected need. As was indicated previously, class distribution can make actual need very different from generalized totals.

The existing schools which will be most affected by the growth induced by the Plan, as the attendance boundaries are now generally drawn, are: La Cresta, Ladera Linda, and Pt. Vicente elementary schools, Margate and Ridgecrest intermediate schools, and all of the high schools.

Another issue of significance to the public schools is the impact which could occur if large numbers of pupils were withdrawn from private schools, or private schools closed. This situation is potential concerning Marymount School. There are 150 pupils, approximately 90% of whom live in the District, who could be enrolled in the public schools. This would be a more immediate and unanticipated impact than new residential construction. The District is attempting to prepare for this potential impact.

Even when funds are available, new construction cannot be completed for two to three years. In addition, under existing State school district financing regulations, the added assessed value from new homes does not provide added revenue to the district, but simply lowers the tax rate.

Ideally, all portable classrooms would be removed, existing schools would either be restored to permanent facility capacity or permanent rooms added, and new schools would be constructed to provide the necessary space and be compatible with the "neighborhood school" objective. It appears unlikely that this ideal will be realized in the foreseeable future under present financing regulations.

School Administration Facilities

The District currently occupies a site in the City of Rolling Hills. The buildings were constructed in the early 1940's. bv the Army, as temporary structures. The School District is planning a move to the Valmonte site upon completion of renovation. The District will vacate the Rolling Hills and Nike site at that time. The City supports a permanent joint use of the facility, and proposes to share a Council/Board meeting room in the District used building.

Growth Rate/ Year*	Buildout	DU/Year	No. Pupils/ Year**	No. Classrooms/ Year***
3%	7+ yrs.	348	418	13
2%	11 yrs.	232	278	9
1%	22 yrs.	116	139	5

* % Annual increase over 1975
** 1.2 pupils per dwelling unit
*** Based on an average of 32 pupils per classroom

Libraries

The Palos Verdes Library District serves the entire Peninsula. There are three existing library facilities: Malaga Cove in Palos Verdes Estates, Peninsula Center in Rolling Hills Estates, and Miraleste in Rancho Palos Verdes. These branches currently have an annual circulation of 1,100,000 books, which is extremely high for the Peninsula population.

The District has plans for improving the existing facilities, but not for additional facilities. If a new facility is proposed in the future, it would be appropriate geographically, and from a population distribution point of view, for it to be in the southern portion of the Peninsula, in Rancho Palos Verdes. One possible location would be the Nike Site, as part of the civic center of the City.

Private Schools

The Peninsula contains several private schools: Chadwick School (K-12), Creative Learning Center (K-12), Montessori de Palos Verdes (K-8), Rolling Hills Country Day School (K-8), St. John Fisher (1-8), plus thirteen nursery schools. Marymount School is presently moving to another location.

The growing demand for child care centers and nursery schools has generated the problem of ensuring private organizations with adequate site locations. Efforts to provide sites in conjunction with new developments and solving locational problems in existing areas will alleviate the need for this activity to locate in unsuitable areas which are not designed to adequately facilitate their needs.

Colleges

The junior college district serving the Peninsula is Los Angeles Junior College District. The nearest junior college is Harbor College located in Wilmington.

Marymount Palos Verdes College has been in Rancho Palos Verdes since 1958. It is presently moving to another location.

Religious Activities

There are twenty churches and one synagogue on the Peninsula. Ten churches are based in the City; seven have their own physical facilities.

Four additional church buildings have been ate, constructed on the Peninsula since 1975. There are now 12 churches and 1 synagogue based in the City.

The Plan designates an area for religious and other activities, centrally located, with good access, and buffered from residential neighborhoods. This area, between Crestridge Road and Indian Peak Road, is also appropriate for other united institutional, cultural, and recreational activities.

Policies

It is the policy of the City to:

1 — Locate schools on or near major arterials or collectors, buffered from residential uses, and provide adequate parking and automobile access.

2 — Make every effort to preserve the Coast Guard Station as a historical and cultural resource, in the event that it is deactivated.

3 — Continue to work closely with the School District in coordinating planning and programming.

4 — Encourage implementation of plans for pedestrian and bicycling networks linking residential areas with schools for the safety of children.

5 — Encourage additional institutions of higher learning and research, particularly those related to oceanography.

6 — Review the location and site design of future institutional uses very carefully to ensure their compatibility with adjacent sites.

7 — Encourage mitigation of the adverse aesthetic impact of the County communications tower, as changing technology and economics permit.

Recreational Activity

Recreational activity areas in this section include sites which have been set aside or are proposed for either active or passive use. These sites are structured to various degrees to allow specific site activities to take place. Path and trail networks, systems which involve linear right-of-way for the purpose of transportation or recreation, are addressed within the Infrastructure section. The purpose of this section is to provide open space for recreational purposes.

Private Recreational Activity Areas

Recreational activities are supplied by both the public and private sectors of the community. Although the latter is not under direct control of the City as to quantity and quality of these facilities, they are major suppliers of specialized recreational activities. Within Rancho Palos Verdes, various types of private facilities (tennis courts, equestrian centers, beach clubs, etc.) are available to individuals who either pay a fee for their use or are members of the club operating the facility. It is to the community's advantage that private recreational facilities continue so that they may either help diminish recreational demands or supply specialized facilities which are not supported by the City.

Public Recreational Activity Areas

Public recreational facilities are provided for by various levels of government. The facilities are proposed, planned, acquired, developed, and operated by these separate jurisdictional entities. This often generates problems in coordination of use of recreational facilities due to the fractured nature of their control. Regardless of these problems, government is the primary source of supplying and maintaining open space lands for the general public's use.

Recreation sites are developed into either active or passive facilities. Active recreational facilities are highly structured and designed with specific activity areas, such as recreation buildings, tennis courts, baseball fields, childrens' play apparatus, etc. On the other hand, passive recreational facilities are mostly unstructured in order to allow natural ecosystems to function with the least amount of human disturbance. Passive sites are usually used for nature studies, hiking trails, limited picnicking areas, etc.

The following groups recreational facilities into active recreational areas and passive recreational areas. This grouping was utilized in order to most accurately reflect the intensity and type of site use provided by an individual facility. A further breakdown within active/passive groundings organizes recreational facilities under the level of government which controls and operates the facility.

Active Recreational Areas

Active recreational facilities supply 205 acres of structured recreational areas; however, only 176 acres are developed and 165 acres of that is a golf course. Consequently, there is presently only one small developed community park. The total acreage figure does not include a significant amount of recreational areas supplied by Palos Verdes Peninsula Unified School District facilities. It is difficult to calculate the acres supplied by existing and proposed school sites. Prior to incorporation of the City the County did not require parkland or fees to serve new development and residents were forced to rely on the use of school facilities.

The General Plan does not, at this time, designate specific additional active recreational areas in the City (except two school sites), unless General Services Administration accepts the City's proposal for desired use of the upper and lower Nike Sites. If the City obtains these sites, it is proposed that recreational facilities would be incorporated into the overall site use. Some additional areas of the City will be added, based on additional study which will follow the General Plan, to provide an equitable dispersion of facilities throughout the City, based on neighborhood desires, and those which will be required with the addition of new developments.

Palos Verdes Peninsula Unified School District Facilities

Palos Verdes Peninsula Unified School District is the largest supplier of public active recreational facilities within the City. The School District provides these facilities for many age levels in the form of open play areas, paved court areas, gymnasiums, etc. Tennis courts are available on a first-come, first-served basis. All other activities, such as baseball and football, must be arranged in advance. It would be a cumbersome task to describe each facility on every school site; therefore, this section only points out that site facilities are designed for the age groups which use the school. It can be assumed that intermediate and high school sites contain facilities which fulfill the needs of young adults and adults, while elementary schools provide recreational activities designed for the young. It is to the City's advantage for the School District to maintain an open schoolgrounds policy, in order to help fulfill active recreational demands of the community. The City currently operates recreation programs at various school sites throughout the City. An example of this is a summer program offered at Miraleste Pool. The School District and City are investigating construction of tennis courts at Miraleste High School on a joint basis.

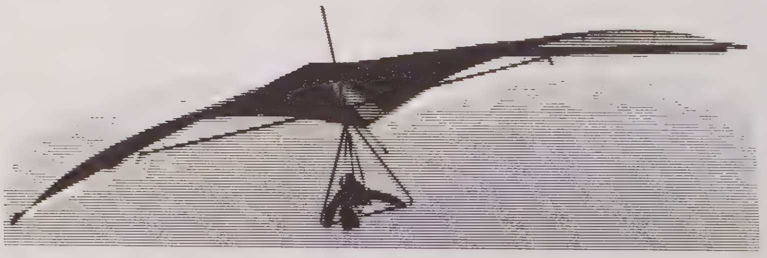
Los Angeles County Facilities

Los Verdes Golf Course is a fully developed 165 acre site which is operated by the County. This facility contains an 18 hole, par 72 course with associated facilities (clubhouse, banquet facilities, coffee shop, lounge, pro shop, two comfort stations, locker and shower rooms, and parking for 300 cars). At present, the County forsees no need for expansion to take place.

Rancho Palos Verdes Facilities

Rancho Palos Verdes Park

This fully developed 11 acre city park contains highly structured activity areas. These consist of sports activities, children's play apparatus, picnic facilities, concession potential, and a recreational activity building. Recreational programs are provided at the park activity building. These programs are designed to offer activities for a wide range of age groups (3 years to senior citizen) and are presently operating at full capacity.



Hesse Park

Hesse Park ... is a 29 acre site which fronts on Hawthorne Boulevard between Verde Ridge Road and Locklenna Lane. This site is one of three sites that has been declared surplus by the Palos Verdes Peninsula Unified School District. The purchasing of this site by the City will take place over a four year period and is planned to be developed into an active neighborhood park. Partial facility development may be provided by private organizations.
Construction is underway at Hesse, Del Cerro, and Clovercliff. Point Vicente is scheduled to begin construction in early 1983.

Passive Recreational Areas

Passive recreational activities comprise the largest amount of recreational lands (375 acres) proposed within the City. This is a reflection of the strong desire to maintain an atmosphere which is compatible with the character of the Peninsula. Most of the areas lie along the coastal region. The facilities should propose a low structuring, in order that the coastline may be enjoyed in its natural state.

The Plan does not propose large public purchase of passive recreational areas. This does not mean that the Plan ignores the value of these recreational lands in preserving open space for public enjoyment; it only indicates that alternative policies are proposed to reduce the tax burden that would be incurred through public title. All other sections of the Plan propose methods that will help preserve the natural character of the City.

Los Angeles County Facilities

Friendship Park

This 123 acre park, of which 97 acres are within the City, is on the eastern boundary of Rancho Palos Verdes, just north of Twenty-fifth Street. Designed use capacity of this park is approximately 1,000 persons, with access being obtained from outside the City, off Ninth Street. The purpose of Friendship Park is to provide a public facility which will give recreational usage overlooking shoreline areas. Development plans call for construction of moderate day-use facilities, various scenic vista points, a nature trail, and minimal landscaping. The southwest corner of the park is designated as a landslide hazard.

Shoreline Park

Shoreline Park consists of a 53 acre site which lies adjacent to the eastern boundary of the City, between the shoreline and Twenty-fifth Street. Preliminary development plans propose light day use facilities.

Abalone Cove

This proposed park is projected to include 82 acres, located along the south side of Palos Verdes Drive South between Sea Cove and Peppertree Drives. The proposed beach area park is comprised of two parcels of approximately 41 acres each. The owners of the westerly parcel have agreed to sell the land to the County, while condemnation proceedings will be required on the second parcel.

This proposed beach facility will be primarily a nature study area, rather than a high density bathing beach. The only improvements will be a reinforcing and modification of existing improvements (paddle tennis courts, parking lots, picnic areas, associated buildings, and infrastructure systems) where they need repair or are below standards, and the installation of four portable lifeguard stations. The headlands and other tidal reef areas will be closed at minus tides except to guided or monitored walks in special environmental corridors.

Point Vicente Fishing Access

Point Vicente Fishing Access lies on the ocean side of Palos Verdes Drive South, between Point Vicente Lighthouse and Marineland. The fishing access is a fully developed 11 acre site which provides access to the shoreline for fishing and scuba diving purposes.

Point Vicente Park

The County is leasing a 28 acre portion of the lower Nike Site for a limited recreation facility. The section to be leased lies on the ocean side of Palos Verdes Drive West, just north of Point Vicente Lighthouse. The County will remove the present rifle range and develop a light day use facility. Because of the tentative nature of the potential ownership of the Nike Sites (refer to Institutional section), the County proposes to temporarily develop this site until a decision is reached by the General Services Administration. At that time, the site will be reevaluated as to its future use. A light passive recreational use of this site would be of a compatible nature to the community's desire to maintain open space uses along the coastal area.

Portuguese Bend

The County has the acquisition of the ocean side section of Portuguese Bend's active landslide on its priority list. Indications are that this site would be opened for public access, with no designed recreational facilities.

Rancho Palos Verdes Facilities

Vanderlip Park

Vanderlip Park is being purchased by the City from Palos Verdes School District in conjunction with the Hesse park site. It is intended for this 17 acre site to remain primarily in a natural state for the next few years. At a later date, this site will be developed into a passive recreational park with limited facilities. An additional small passive park, Clovercliff, is located on Golden Meadow Drive at the terminus of Clovercliff Drive.

Large portions of the Nike Site are designated for park purposes in conjunction with a Civic Center.

Miraleste Recreation and Park District

The Miraleste Recreation and Park District contains 32 acres of canyon area, used as a sanctuary for native wildlife.

public recreational activity

figure 17

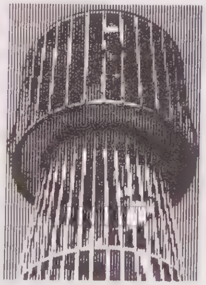
rancho palos verdes

Additional Recreational Facilities

Although the General Plan does not delineate specific additional recreational areas, it is intended that facilities will be added in conjunction with proposed developments (which, by providing additional units, will induce new residents, which, in turn, place a recreational load on the community), and through further study of existing neighborhoods.

Various implementation techniques (consult the Implementation section) will enable the City to obtain additional open space and recreational lands in conjunction with new developments. This is especially true in undeveloped areas to the south of Crest Road. The exact amount and use of these open areas (natural open space, passive recreational areas, or active recreational areas) will not be known until development proposals and environmental impact reports are submitted for these individual areas. It is through this segment of City development that specific site information would be obtained which would evaluate the best use of dedicated open space.

A further study of recreational activities on a neighborhood level could follow this General Plan. The study would concentrate on recreationally deficient areas such as the eastern portion of the city and high density housing concentrations along Ravenspur Drive and Highridge Drive. This study could analyze each existing neighborhood in order to determine amount of deficiency and propose solutions to both existing and potential problems. Solutions might resolve from joint efforts of the City and the residents of these neighborhoods. An example of public lands which residents have informally developed into recreational areas is the activities that are taking place within the Narbonne right-of-way (this right-of-way was intended to be used by the County in realignment of Palos Verdes Drive East) adjacent to Sunnyside Ridge Road. Residents have informally used this right-of-way to develop a play area and to exercise horses. There are also other areas in private ownership which have been used by residents and would be considered. It is hoped that this study would aid individual neighborhoods to reflect their recreational desires. Implementation might involve some public funds, or it might be through private effort.



Policies

It is the policy of the City to:

1 — Provide access to all public recreational land.

2 — Continue to sponsor recreation programs within the City considering the diversity of needs.

3 — Encourage local, public, non-profit recreation and cultural activities which provide outlets for citizens on a non-discriminatory basis.

4 — Establish ordinances to require builders and developers to provide lands and/or funds for acquisition and development of land for recreational use. These lands and/or funds shall be based on a standard of providing 4 acres of local park land per 1000 population.

5 — Seek County, State, and Federal funds or sharing funds to acquire lands.

6 — Encourage land holders to contribute lands to the City for recreational use.

7 — Work through the State and Federal government in support of legislation resulting in governmental acquisition of coastal land.

8 — Encourage local citizens groups to participate in the planning, development, and maintenance of recreation facilities to the extent possible.

9 — Engage in further study of recreational activities on a neighborhood level following the General Plan.

10 — Investigate the interim use of vacant school sites for recreational use.

11 — Encourage public use of institutional recreation facilities, where possible.

Agricultural Activity

Once the most predominant land activity on the Peninsula, agricultural has now been diminished to only a few remaining areas. A majority of these agricultural areas lies within Rancho Palos Verdes' jurisdiction, where there is strong support for its preservation as open space for the managed production of resources. The primary aim of the Plan, in relationship to agriculture, is to evaluate existing agricultural activities and determine which of these areas is both compatible with its future surroundings and of a nature that makes it economically feasible to maintain.

Existing agriculture is of three main types: grain, special crops, and flower farming. Grain farming requires large sites in order to remain economically feasible, while specialty crops and flower farming are of a higher economic yield, which allows them to exist on smaller sites.

Agricultural Activity Areas to be Preserved

Two major areas are incorporated into the Plan; these are of a nature compatible to adjacent surroundings and of a scale which would allow them to produce profitable crops.

A portion of the Portuguese Bend slide area is the first major agricultural area. Existing agricultural practices include primarily specialty crops. This activity was considered to be one of the few compatible uses for the slide area. In order for agriculture to be completely compatible in this area, crops which require little or no water must be grown. This is to eliminate as much water intrusion as possible on the active slide area, because of water's tendency to act as a lubricating medium.

The second area is not designated on the Land Use Plan but consists of two flower farming sites located on opposite sides of Palos Verdes Drive South near Marineland. Both of the flower farms are located on leased portions of sites which are used for other activities. It is felt that both areas could be maintained as visual accents on these sites without placing a major limitation on the uses which share the sites.

All agricultural activities not indicated above should continue until surrounding areas have developed to their capacities. Only when these agricultural areas can no longer maintain reasonable productivity should they be converted to uses indicated by the Plan.

Agriculturally Related Commercial Activity

There presently exist several produce and flower stands along Palos Verdes Drive South. A specific policy has been incorporated into the General Plan which is directed at upgrading and preserving this activity in concept due to its cultural significance.

Policies

It is the policy of the City to:

1 – Encourage implementation techniques for preservation of agricultural activities.

2 – Assist in the protection or conservation of agricultural sites.

3 – Encourage continued operation of existing produce and flower stands, not necessarily in present locations and structural types, but in concept, related to local agricultural use.

4 – Preserve flower farming wherever possible, in order to provide aesthetic appeal and visual accent.

infrastructure

IT SHALL BE A GOAL OF THE CITY TO ENSURE ADEQUATE PUBLIC UTILITIES AND COMMUNICATIONS SERVICES TO ALL RESIDENTS, WHILE MAINTAINING THE QUALITY OF THE ENVIRONMENT.

IT SHALL BE A GOAL OF THE CITY TO PROVIDE RESIDENTS WITH A SAFE AND EFFICIENT SYSTEM OF ROADS, TRAILS AND PATHS.

IT SHALL BE A GOAL OF THE CITY TO ENCOURAGE THE INCREASED MOBILITY OF RESIDENTS THROUGH THE DEVELOPMENT OF AN ADEQUATE PUBLIC TRANSPORTATION SYSTEM.

The existence of urban man in a given area is normally dependent upon the availability of certain natural and man-made support systems. Natural support systems include air, water, etc., and are discussed in the Natural Environment section of this report. Man-made support systems include domestic water, energy, transportation, communications, sanitation, and flood control. These systems are commonly referred to as the "infrastructure." The facilities and networks which make up the infrastructure are generally considered as the foundations on which activity areas are facilitated and maintained and, in some cases, the primary criteria for the further growth of these activity areas.

The Rancho Palos Verdes infrastructure is similar in composition to most Southern California communities and consists of the following major divisions:

— Resource Systems (water and energy)

— Disposal/Recovery Systems (sanitation and flood control)

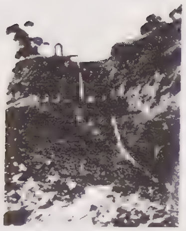
— Communication Systems (broadcast and cable)

— Transportation Systems (vehicular and non-vehicular)

By way of summarizing the existing condition of Rancho Palos Verdes, in respect to the functions rendered by the infrastructure, it can be said that the city is being adequately served. Various infrastructure functions, however, are not without significant problems and deficiencies.

To better understand the status of the existing and future infrastructural condition, it is important to point out three very significant factors. First, the environmental characteristics of the Palos Verdes peninsula are such that it is a very desirable location to live, work, and visit, hence, an influx of people needing varied support services. Second, as an unincorporated part of the County until 1973, the area had few residential development restrictions; therefore, higher populations were projected. Finally, if the previous factors are coupled with the rationale of the infrastructure-related companies and agencies, whose philosophy has justly been to supply services by planning ahead (generally using population projections), the result is installation of maximum facilities, based on extent and location of growth.

The deficiencies currently found in infrastructure functions are rarely of a common nature, therefore they are discussed on an individual basis throughout the Infrastructure section.



Some of the problems, however are common to many or all infrastructure systems. The Portuguese Bend slide area was found to be the major problem area, not only from the standpoint of human safety, but from that of infrastructure function, as well. All infrastructure networks, to some degree or another, utilize the slide area for right-of-way. Because the earth is constantly moving in that area, all networks are above ground and most have had to incorporate special devices to allow for movement, for example, "slip span" in cables, and "swing joints" in water lines. The various networks in the slide area are constantly being monitored and maintained and, although it is quite costly, the affected companies and agencies have tentatively indicated that to eliminate the networks in favor of realignment or readjustment is economically infeasible at this time. Most infrastructure related companies and agencies agree that further study of this problem is warranted.

The precise extent to which the infrastructure adversely affects the Rancho Palos Verdes environment is relatively difficult to appraise, particularly in the various activity areas. This is due, in part, to the fact that within an activity area, adverse impacts can result from the combined effects of one or more of the activity's components. The presence of an isolated infrastructure corridor through the natural environment enables a more accurate appraisal. The most obvious adverse impacts of the combined infrastructure include:

1. Disruption of ecosystem
2. Depletion of natural resources
3. Sensory pollution (primarily visual and auditory)
4. Potential safety hazards
5. Potential growth inducement
6. Fiscal impact

Of the aforementioned impacts, only the disruption of an ecosystem is considered to be of a totally irreversible nature, for the locating of a network in the natural environment often establishes a corridor which acts as an edge or barrier for animal and plant communities. Impact factors 2 through 6 however, may be eliminated or reduced to acceptable levels through mitigating tactics.

For example:

- The depletion of natural resources (water, fossil fuels) may be reduced by practicing conservation, using alternative, renewable, or recycled resources, and through the use of more efficient development techniques.
- Sensory pollution and safety hazards can be effectively reduced or controlled by man-made measures, such as undergrounding and/or landscaping of utilities, and through the development of less offensive devices which produce effects.
- The impact of growth (and its secondary effects) induced by the infrastructure can be mitigated through the development of strict land use controls, such as establishing low residential densities and by limiting commercial and industrial activities.
- The fiscal impacts related to the infrastructure are primarily generated by the services provided and through the construction and maintenance of the various systems. Although the service costs of utilities are relatively stable (as regulated by the Public Utilities Commission) users

can effectively reduce cost through conservation and use of other mitigating techniques often associated with depletion of natural resources (see above). The cost of streets and flood control, which is initially borne by the City, can be reduced through land use controls, construction techniques and on-going maintenance programs.

The following sections discuss in greater depth each of the infrastructure systems and the agencies and companies responsible for them. In addition, more specific information as to impacts, problems and deficiencies is also indicated.

Resource Systems

Water

One of the most vital components in the infrastructure is the water distribution system. Unlike other infrastructure components such as flood control systems, which are primarily for convenience, water is a necessity of the most basic human settlement. In Rancho Palos Verdes, as in other developed areas, water is used for varied purposes, which can be grouped into four basic categories:

- Safety requirements (fire)
- Human consumption (drinking, food preparation)
- Grounds maintenance (landscaping)
- Urban activities (sewage medium)

The water needs of the City of Rancho Palos Verdes and the remainder of the Palos Verdes Peninsula are currently served by the California Water Service Company (CWSC). The sole function of CWSC is to supply the area with sufficient fire safety requirements and adequate amounts of potable drinking water at a pressure consistent with accepted standards. The CWSC is a private company which operates within the regulations and standards of the Public Utilities Commission. Currently the CWSC purchases all its water from the West Basin Water Association (a distributor for Metropolitan Water District), which supplies the Peninsula with water imported from Northern California via the California Water Project.

The water distribution system, as with other infrastructure components, consists of resource facilities (reservoirs and tanks) and networks (distribution lines, valves, hydrants, and pumping stations). This component of the Rancho Palos Verdes infrastructure is designed as an integrated grid system, that is, a system which combines resource facilities and network in a basically closed, interconnecting configuration. Integrated grid networks have numerous advantages over linear or radial networks, but the primary advantages include:

- They are well suited to diverse topography
- They provide a more uniform flow over a broad area
- They allow greater distribution of water in times of maintenance or emergency

Water is distributed through the networks primarily by gravity; however, booster stations, pump stations, and regulation valves are incorporated in the network to guarantee adequate water pressure. The design of the water network is based on fire flow requirements and domestic supply requirements. Water mains generally range in size from as large as 33 inches to as small as 6 inches (with some exceptions).

At the present time, the water needs of Rancho Palos Verdes are being adequately served by CWSC. Discussions with representatives of CWSC indicate that the main trunk system, which delivers water to Metropolitan Water District's Palos Verdes Reservoir, is capable of serving a population well over that which is projected for the Peninsula. An increase of population, primarily in the undeveloped areas, will create storage problems to existing CWSC resource facilities. With population increases in mind, CWSC is currently studying the possibility of expanding capacities of existing facilities, as well as acquiring an additional storage facility in the southeast portion of the City (Nollenberger, interview).

The water distribution system, while adequate to serve existing needs of the City, does possess some areas of deficiencies and problems. The deficiencies relate primarily to isolated cases of inadequate water pressure on the east side and in the extreme north (near Via Campesina). The Portuguese Bend area presents water problems which are of major concern. Because of the constant hazard of being damaged from earth movement, water mains are considerably smaller than the norm (in some cases, only 2 or 3 inches), and all lines are above ground. Small water lines in this area present a problem, primarily to fire fighting capabilities. County Fire Department standards require an average water flow of approximately 2,500 g.p.m. to provide adequate protection. Upper Portuguese Bend is far below this standard; therefore, it is acknowledged as being as area of particular concern to fire fighters. (See Safety section).

The impact of the existing water distribution system on the Rancho Palos Verdes environment is relatively small, primarily because facilities and networks are integrated or assimilated in the existing structure. The impact of future water distribution systems is not expected to cause significant adverse impacts. Future water systems will be associated with the development of proposed activity areas (residential, commercial, etc.) and therefore must be evaluated not as an isolated system, but rather as a cumulative effect generated by development as a whole. The most obvious impact would be the visual effect created by a new storage facility. Related mitigating measures would include undergrounding of tanks and/or implementing landscaping techniques (buffering vegetation and berms). The impact of expanding the capacity existing water storage facilities, if needed, is not expected to cause significant environmental impacts but may actually be beneficial to man and natural systems. This can be accomplished in two basic methods. First, the fiscal impact on customers is reduced, in that new property is generally not required and the cost of expanding an existing system is considered to be less than construction of a new facility. Second, the impact on the natural environment will be minimized since raw land that might ordinarily be required will be allowed (it is assumed) to remain in its existing state.

Energy

Energy systems provide the power necessary to operate and maintain our way of life. Rancho Palos Verdes, like most of Southern California, relies on a dual energy system. Electricity and natural gas are the two primary sources of energy for the average Rancho Palos Verdes customer. Many of the functions of natural gas and electricity are interchangeable. That is, natural gas or electricity can both be used for cooking appliances, house heating, etc. Natural gas and electricity systems are individually summarized in subsequent paragraphs of this discussion.

Natural Gas

Southern California Gas Company (SCGC) furnishes natural gas to the Palos Verdes Peninsula. Although part of the larger Gas Company system, Rancho Palos Verdes is included within two SCGC distribution sections, which function principally as sub--administrative districts and are responsible for all lines and service systems which feed from transmission lines to the point of delivery.

Because of the lack of industry and major commercial centers, the residential customer is the prime recipient of natural gas in Rancho Palos Verdes.

Like all other resource-related infrastructure components, the natural gas distribution system consists of resource facilities and networks. Unlike the others, however, no resource facilities exist in Rancho Palos Verdes. Natural gas processing and transmission facilities were considered to be the resource facilities, and all are located outside the Palos Verdes Peninsula area. Natural gas networks, on the other hand, are quite similar to other networks in configuration and, in many cases, actually parallel water and electric networks. The gas network is made up of distribution lines (supply, headers, and mains), regulating stations, isolation valves, and extremity gauges.

SCGC utilizes an integrated grid system for much the same reasons that the California Water Service Company does – uniform flow and efficient service capabilities during maintenance or emergency. Natural gas is pumped, under high pressure, from the resource facility through transmission lines (none in Rancho Palos Verdes) to the distribution network which supplies Rancho Palos Verdes customers.

The facilities which supply and distribute natural gas to Rancho Palos Verdes customers appear to be satisfactorily meeting the present demand. Past projections of major population gains while under County rule prompted SCGC to design and install distribution equipment at maximum standards; therefore, the demand which is expected to be generated by this Plan should be adequately met by the Gas Company. Further expansion of the natural gas infrastructure will be wholly determined by future growth patterns. (Parker, interview). The primary concern to natural gas users is not the adequacy of service facilities, but rather a diminishing supply of natural gas and the economic realities associated with it. As gas reserves are reduced, the cost of locating and processing new sources increases, thereby increasing the cost to gas customers. Furthermore, the diminishing gas supplies was seen to be one limiting factor, among many, that called for concern by the City in the development of this Plan.

Discussions with representatives of SCGC indicate that, while all gas lines are potentially dangerous if broken or severely damaged, the distribution network in the Portuguese Bend slide area is of critical concern. It is for this reason that most distribution lines in the Portuguese Bend area furnish the relatively low pressure of 8 p.s.i. at meter (normal pressure is approximately 30 p.s.i. at meter). In addition, most lines are above ground to facilitate the constant inspection and periodic maintenance. SCGC has integrated a regulation station into the slide area network in order to have sufficient control of a potentially critical situation. No areas of significant deficiencies were found within the city.

The current impact of the natural gas infrastructure on the Rancho Palos Verdes environment is considered to be small. This is due primarily to the fact that the network is associated with the existing city structure. The environmental impact of future systems is expected to remain relatively small. As with most other utilities, future gas systems will be a part of future activity area develop-

ment and will therefore be evaluated as total units. However, the cost of providing a diminishing resource of uncertain quantities is a fiscal impact that is continuously increasing. This is borne out by recent rate increases (January and April 1975) charged to gas customers. While the cost of natural gas will inevitably increase, there are two basic mitigating tactics that can be employed. The first is an individual effort by all customers to conserve gas through such actions as, the installation of insulation in homes and businesses and lowering of thermostats. The second is the development of alternative gas sources, such as methane. The Los Angeles County Sanitation District is currently involved in considerable research and development of methane. Methane is a flammable gaseous hydrocarbon which is formed by decomposition of recyclable matter, and is principally found in landfills and sewage treatment plants. Methane gases which are generated at County sewage treatment plants are currently being used as power sources by the sewage treatment plants themselves and by some industry on a limited basis. In addition, efforts are currently under way (in coordination with a private company) to process methane generated by the Palos Verdes landfill and sell the refined gas to SCGC for distribution into the natural gas network. (Edward, interview). It should be remembered that the impacts and mitigating measures stated above are only temporary at best and further research is needed to determine the impact and associated mitigating measures related to the ultimate depletion of natural gas.

Electric

Electric power is the other half of the dual energy system currently used in this general area. Southern California Edison Company (SCE) supplies all electrical power to Rancho Palos Verdes and the remainder of the Palos Verdes Peninsula. As with other resource infrastructure agencies, SCE is required to operate within the regulations and standards of the Public Utilities Commission.

The electric infrastructure is made up of resource facilities and a distribution network. Rancho Palos Verdes is currently served by three resource facilities (66/16 K.V. substations), two of which are located within the City of Rancho Palos Verdes. The power distribution network consists of major source lines (66 K.V.) which run from power generating resource facilities to local substations and the lesser transmission lines, which in turn deliver power to customers in a usable state. The electrical power distribution infrastructure in Rancho Palos Verdes is designed as an integrated grid system, principally for ease of maintenance and uniform current flow; however, these factors are not as acute as that of the water infrastructure.

At the present time, the electrical power needs of Rancho Palos Verdes are being adequately met by SCE. Discussions with SCE representatives tentatively indicate that based on the Land Use Plan at least one new substation (66 K.V.) may be required in the southeast portion of the city, presumably near Forrestal Dr and P.V. Drive South (Avera, interview). The alignment of future power transmission lines (66 K.V.) is not known at this time.

The only problem area associated with the electrical component of the urban infrastructure exists in the Portuguese Bend slide area. No major supply lines (66 K.V.) exist in the slide area; however, several lesser distribution lines are present and are susceptible to damage from earth movements. No significant electrical deficiencies exist in the city.

Although the impact of the electric infrastructure on the Rancho Palos Verdes environment is considered to be small, overhead transmission lines, transformers, and associated poles do pose significant adverse visual qualities and potential safety hazards. Overhead wires and associated hardware are vulnerable to damage caused by natural conditions, such as high winds, lightning, and tree growth, and man-caused conditions such as automobile accidents, thereby creating power outages and, in some cases, safety hazards if severed or broken. In addition, overhead wires are an unsightly vestige of a necessary infrastructure component, and cause considerable disturbance to views. Efforts to minimize the above impacts are being undertaken by SCE through the undergrounding of most new distribution networks, when economically and physically feasible. Technological limitations do exist in respect to undergrounding high voltage lines (66 K.V.+); however, the majority of distribution lines can and are being undergrounded. Furthermore, adverse visual impacts of resource facilities (substations) can be reduced by screening with berms and landscaping. In the future, the continuing depletion of contemporary energy sources (i.e. — fossil fuels) will create impacts of substantial proportions unless alternate energy sources can be employed. Nuclear power is the energy source most often referred to as an "alternative" (even though it is currently in use). Other sources, such as solar, wind, tidal, and geothermal are also being studied to determine the respective potentials on a broad scale. Conservation of energy is recognized as an interim mitigating measure which can be used to effectively delay the depletion of fossil fuels.

Resource System Policies

It is the policy of the City to:

1 — Cooperate with California Water Service Company and the Los Angeles County Fire Department to improve water service (pressure and flow) in areas of inadequate service.

2 — Encourage the investigation and use of alternative water and energy sources.

3 — Promote, practice and encourage workable energy conservation techniques.

Disposal / Recovery Systems

Sanitation

The sanitation component of the urban infrastructure is divided into two basic groups. These are sewerage recovery systems and refuse collection systems. Each sanitation component is comprised of a system of networks which function as collecting agents and recovery facilities which store, treat, and dispose of waste.

Sewerage

In Rancho Palos Verdes, the sewerage system is maintained and operated by three agencies: the County Engineer, County Sanitation District #5 and the South Bay Sanitation District. The County Engineer is responsible for the collection of sewage from its source of origin through a network of sewerage lines. The Sanitation Districts, in turn, are responsible for operating and maintaining the network of sewerage trunk lines, treatment facilities, and the method of disposal. Although these two agencies are separate entities which provide different types and levels of service, all projects and schedules are jointly coordinated to ensure maximum efficiency. To facilitate understanding of the sewerage system, all networks operated by the County Engineer will be considered as primary collection networks, while all networks and facilities operated by the Sanitation District will be referred to as secondary collection networks and recovery/disposal facilities.

The configuration of the primary network is largely dependent upon the topography of the area being served; however, most of the Rancho Palos Verdes sewerage network takes on a multi-linear structure with sundry branches serving local streets. The secondary network, however, is strictly a linear system, with no branches or forks except at the numerous intersections with the primary network. Ideally, sewage is collected via a gravity flow system; however, because of the diversity of topography in Rancho Palos Verdes, several pumps have been placed at strategic locations to aid in the collection process. Recovery/disposal facilities, otherwise known as sewage treatment plants, are normally close to the point of disposal. In the case of the Sanitation Districts the treatment plant is located well outside the boundaries of Rancho Palos Verdes. The sewage treatment process is quite complex, and a detailed discussion is beyond the scope of this report. The following is a cursory description of the process: After collection, the sewage is routed through a series of steps which separate the various constituents into solid and liquid states, which, in turn, are processed for disposal.

Currently, the treatment plant gives all sewage a minimum of "primary" treatment before disposal or use. After treatment, some of the by-products generated by solids become usable. For example, as by-products methane can and is being used as a power source, and processed sludge (solids) is being used as fertilizer. Liquid wastes, after being treated are discharged through an ocean outfall at Whites Point, near the southernmost boundary of Rancho Palos Verdes.

At the present time, both primary and secondary sewerage networks which serve parts of Rancho Palos Verdes are adequate. Sanitation District representatives state that based on the densities set forth in the Land Use Plan, the trunk line and treatment plant are capable of maintaining adequate service to Rancho Palos Verdes customers. It is further stated that the existing pump station in the Portuguese Bend slide area will have to be replaced and/or enlarged in order to meet any increased demand and that new pumps will be required for all new activity areas below the trunk line. (Christensen, interview)

As with other infrastructure components, the major problem area lies within the Portuguese Bend slide area. All sewerage lines which cross the area are above grade, unsightly, and subject to potential breakage. A break in the sewerage network would mean the spilling of raw sewage, because there are no shut-off valves in the sewerage system. The absence of shut-off valves is not peculiar to Rancho Palos Verdes, but rather common to the entire system. The linear configuration of the network does not allow for the use of shut-off valves because the shutting off of a portion of the system would mean the backing up and possible overflow of sewage "upstream." In the case of the slide area, however, if a severe break occurred in the trunk line, the pumping station could be turned off, thereby acting as a shut-off valve. Representatives of the Sanitation District indicate that this would only be done in a case of extreme emergency (Christensen, interview).

Another problem area lies not within the boundaries of the City, but rather off the Rancho Palos Verdes coastline. Currently, there are three waste water outfalls which are of immediate concern to the coastal environment of Rancho Palos Verdes. Los Angeles County Sanitation District jointly operates two waste discharge outfalls off the Palos Verdes coastline at Whites Point. Approximately 356 MGD (million gallons per day) of primary treated waste water is currently being discharged. The adverse impacts of pollutants discharged into the marine environment are significant enough to warrant action, such as the passage of a Federal law that requires all waste water have secondary treatment by 1977. Discussions with representatives of the Sanitation District indicate that efforts are now underway to improve the treatment of water discharged from the Whites Point outfalls (Christensen, interview), however, there appears to be some doubt as to whether or not the Federal standards will be met by 1977, or that the standards will ever be met (California Coastal Zone Conservation Commission, Coastal Zone Plan Element: Marine Environment, Final Draft, pg. III-4). Marineland of the Pacific, which is located in Rancho Palos Verdes, also operates a waste water outfall. This private outfall is actually part of the display tanks' salt water replenishment system and acts to discharge "used" ocean water. The ocean water being discharged does contain some chemical wastes, added to maintain an attractive display system. The chemicals include chlorine and copper sulfates (algacide), which are regulated and monitored by the Los Angeles Regional Water Quality Control Board to ensure that water quality is maintained.

When viewed from the standpoint of being part of a much larger activity, the impact of the existing Rancho Palos Verdes sewerage system is relatively small, with the most obvious impact being the adverse visual quality of the exposed trunk line in the Portuguese Bend slide area. This impact could be reduced through a landscaping program or totally mitigated by eliminating the trunk line from the area. A less obvious, yet environmentally important impact is the city's contribution to the pollution which occurs in the ocean due to the pollutants discharged from the sewage outfalls. The current amount of sewage generated by the city is less than 1% of the total discharged by the Sanitation District. While any pollution of the marine environment is of concern, the primary concern is the overall quantity and condition of sewage that is discharged. The most practical mitigating measure, at this time, is implementation of a minimum of "secondary" treatment of all sewage discharged into the ocean.

Based on the Land Use Plan, the impact of the future sewerage system is not expected to change dramatically, one way or the other. The area which is designated as a "specific plan" zone on the Plan may generate additional fiscal and energy consumption requirements from the expected use of pumps to push sewage to the trunk line. A more thorough analysis of the impacts and mitigating measures will be an integral part of the development of that specific plan.

As an alternative method of disposing of sewage, septic tanks generally have and will continue to be effective, particularly in rural areas. Septic tanks are found in two general areas. Portuguese Bend has the largest concentration of septic tanks, while the remainder are scattered in various eastern sections of the City. Given adequate maintenance, satisfactory soil and geologic conditions, and low residential densities, septic tanks rarely cause major problems to the general public. Landslide areas, however, are of special concern. Evidence suggests that ground water intrusion from various sources may act as a "lubricant" and may be a contributing factor to landslides.

Solid Waste

The collection of refuse in Rancho Palos Verdes is a service which is carried out by several private companies. Each company provides refuse collection services for specific areas in the City. This component of the infrastructure is unlike others, in that the companies charged with the collection of solid wastes act only as the mediums, while the actual refuse collection network is the system of streets and highways, and the County landfill acts as the disposal facility. Simply stated, the refuse collection system involves the collection of solid wastes from customers and the delivery of wastes to the landfill, where it is disposed of.

Study of the refuse collection infrastructure suggests that the service companies are effectively meeting the present demand, as is the landfill here on the Peninsula. The future population increases should pose no problems in relation to the collecting of refuse; however, the landfill will meet its projected capacity by about 1980. Therefore, alternative sites (existing and proposed) will be needed for refuse disposal.

The impacts of refuse collection on the Rancho Palos Verdes environment are considered to be minimal, primarily since collection activities are limited to existing developed areas, and then only occasionally for short durations of time.

The increased environmental awareness of the general public has generated much study into the various methods of waste disposal. This interest has resulted in the growing demand for the development of waste recycling programs. In Rancho Palos Verdes, the Federal Government, in coordination with the American Association of University Women and a private refuse collection company, has established a pilot program for the separate collection of newspapers, in addition to that of common refuse. The program is designed so that customers in a given area may set aside newspapers for collection and eventual recycling. Furthermore, a coordinator of the program suggests that based on the acceptance and feasibility of the service, a city-wide program could be implemented which might also include glass, aluminum, and other recyclables. (De Christofaro, interview)

Flood Control

The flood control infrastructure is a system of channels and drains which guide and control the flow of surface water, in selected locations, which result from natural or man-caused factors. In Rancho Palos Verdes, the flood control infrastructure is the responsibility of two contracting agencies: the Los Angeles County Flood Control District and the Los Angeles County Road Department.

Unlike other components of the Rancho Palos Verdes physical infrastructure, the flood control component is not a continuous system of networks which have a common origin, but rather an intermittent series of individual networks which empty into the natural environment. The area at which a man-made flood control system comes into contact with the natural system, such as ocean or canyon, is referred to as an interface, and is of special concern in an area like Rancho Palos Verdes.

The basic purpose of flood control facilities is to protect people and their possessions from the sometimes hazardous results of periodic flooding. The topographic characteristics and location of Rancho Palos Verdes preclude the possibility of the type of flooding experienced in some of the lower, flat areas in Southern California; however, the potential for flash flooding in the numerous arroyos does pose definite problems. (See Safety section of the Urban Environment Element.)

The flood control facilities which currently exist in and around Rancho Palos Verdes appear to be functioning in a satisfactory manner. There are however, areas of significant deficiencies. The area of the most immediate concern is Altamira Canyon. This canyon bisects the existing Portuguese Bend residential development, runs under Palos Verdes Drive South, and continues on to Abalone Cove. Numerous complaints of "boulders", mud, and sundry debris being washed down the canyon during rain storms have been recorded, and indications are that this canyon deserves a high priority of concern by the FCD. The other major problem area is located where San Pedro Canyon crosses Miraleste Drive. Reports of flood hazard on the street require that this location also be given special attention by FCD. The location and density of future development, as projected by this Plan, will no doubt require that flood control techniques be implemented at these and other water courses. Both the Flood Control District and the Road Department have plans for additional flood control networks in Rancho Palos Verdes, however, the funding of such projects is based on a flexible priority system and therefore no construction dates can be assigned.

The impacts of existing and future flood control networks are basically related to pollution and erosion at interfaces and visual quality. Pollution and excessive erosion are two major problems at flood control/natural system interfaces. Pollutants which can enter the natural environment include: petroleum products, fertilizers, pesticides, and other chemicals. These pollutants are generally washed from impervious surfaces such as streets and driveways, through gutters, drains, and flood control channels into natural systems, and eventually into the ocean, thereby causing damage to the ecosystem. Unfortunately, little can be done to alleviate this problem. Strict enforcement of litter and pollution regulations is the best control method, at this time. Excessive erosion at the interface, on the other hand, can and should be controlled. This condition is caused when water which is being carried in a concrete channel is allowed to gain an unnatural velocity, meets the comparatively soft and irregular conditions of the natural system, thereby creating excessive erosion. The techniques used to slow the water are relatively inexpensive and easily installed. One of the most fundamental methods includes the creation of a water resistance system, such as protruding rocks or buffers located immediately before the interface areas. Adverse visual quality can be mitigated through the implementation of landscaping programs designed to hide or soften the channels. Adverse visual and environmental impacts can be reduced by retention of natural water courses. In these cases, some alternative flood control techniques, such as intermittent wooden (e.g. — railroad ties) or rock check dams of limited scale could be employed. The fiscal impact of future flood control networks will be borne by the City. Methods that could be used to minimize cost include:

- Retention of natural water courses, where practical
- Planning for low densities in flood water generating areas as well as flood water impacted areas
- Coordination between communities and agencies which impact each other

Disposal / Recovery System Policies

It is the policy of the City to:

1 — Take an active interest in waste management and recycling programs and offer assistance to groups attempting to offer solutions to the problem of waste.

2 — Require sanitary sewers in all major new developments.

3 — Encourage the retention of all remaining natural watercourses in their natural state.

4 — Require developers to install necessary flood control devices in order to mitigate downstream flood hazard induced by proposed upstream developments.

5 — Require that all flood control/natural watersource interfaces and systems be treated so that erosion will be held to a minimum.

6 — Encourage the investigation of methods to reduce pollution impacts generated by development runoff.

7 — Encourage the Sanitation District to upgrade all wastewater discharged from the Whites Point outfalls to a minimum of secondary treatment.

8 — Require the installation of sewers in existing development if alternative sewerage systems endanger public health, safety and welfare.

Communication Systems

The communications component of the infrastructure is a multifaceted and highly complex system of resource facilities and networks which aid in the support of our life style. Once considered no more than luxuries or convenience items, communications systems have developed into a very necessary function of our society. Communication systems disseminate news and information, relay personal and business messages, provide audio and visual entertainment, and perhaps the most important function, provide a means of transmitting and receiving emergency messages.

Understandably, a study of this type cannot discuss all communications systems that are currently being used. Therefore, a selective analysis of the sundry communications systems was undertaken and those which require direct contact with the physical environment and/or significantly affect the communicative capabilities of the general public were selected for discussion.

For the purposes of this study, the selected communications systems were divided into two basic categories. The first category includes systems in which the transmission network is an element of the physical infrastructure, for example telephone and cable systems. The broadcast communications category consists of those systems which primarily use the air-waves to transmit signals. This category includes, radio, broadcast television, and microwave systems.

Cable Transmission Systems

Telephone

The telephone is common to most residences and places of business in Rancho Palos Verdes and in that respect is the most accessible and widely used communication system available to the general public. The City of Rancho Palos Verdes is served by two telephone companies. General Telephone Company serves all but the easternmost portion of the City (Miraleste area), which is served by Pacific Telephone Company. Both Pacific Telephone and General Telephone are private utilities, and as such, must operate and set rates in accordance with the standards and regulations of the Public Utility Commission.

The telephone system in Rancho Palos Verdes basically consists of a network of transceivers (telephones), transmission lines, and switching centers. The configuration of the telephone communications network is defined as a modified linear system, that is, a major line to which all branches are directly attached. The telephone companies own four sites in Rancho Palos Verdes; however, only one functions as a switching center. The switching station is owned by General Telephone and is located on Crest Road, near Highridge Road. One of the remaining sites is also owned by General Telephone and holds a radio transmitter. The other sites are owned by Pacific Telephone. Neither function as switching centers, but rather as radio transmission facilities. In addition to these sites, utility easements are dispersed throughout the area.

An analysis of the present telephone communications system indicates that all developed areas of the City are adequately served. Furthermore, representatives of both telephone companies point out that service will remain adequate, based on Land Use Plan. (Lewis, interview – Smith, interview.) General Telephone, which serves the largest portion of the City, has plans to increase the capacity of the existing switching center through the installation of automatic equipment (Lewis, interview).

State law mandates that all cities must develop and implement a single emergency services telephone number system by the end of 1982. Commonly referred to as the "911 System," the purpose of the system is to provide a state-wide emergency number (911) which will shorten the time in the emergency response cycle. Rancho Palos Verdes has agreed to participate with Los Angeles County in the joint development of computerized 911 system. This computerized system would allow for automatic routing of emergency calls to the proper agency. (See Safety section of Urban Environment Element.)

The environmental impacts which result from the telephone networks are analogous to those experienced with the electric power infrastructure. Because the systems most often utilize corresponding spaces, the impacts are one and the same. As discussed previously, the key impacts are related to the use of overhead wires, which are visually unattractive and can be a safety hazard. General Telephone and Pacific Telephone are both acutely aware of the problems posed by overhead wires and have related their willingness to cooperate wherever possible by undergrounding transmission lines. The fiscal impact of conventional telephone communication (maintenance, installation, and service costs) is absorbed by the customer, and rate increases will be subject to the Public Utilities Commission. The City and County are jointly responsible for costs generated by the planning, installation, and maintenance of the 911 system. Since the 911 system is in the preliminary planning stages, no fiscal assessment has been determined. State funding has been applied for; however a representative of the County's Communications Department states that no funding has yet been appropriated (Hansen, interview).

Cable Television

Cable television is a system of transmission facilities and distribution lines which furnish subscribers with audio-visual signals to replace broadcast television. In Rancho Palos Verdes, cable television is supplied by Palos Verdes Cable Television, which operates under the terms of a franchise with the City. A portion of the City is currently supplied with cable television by Dimensions Cable (parent company T.M. Cablevision).

Currently, the fundamental basis for subscribing to cable television is due to poor reception of broadcast television, generally caused by geographical location (i.e., the lower elevations of the south and southeast). To this date, most development has coincidentally occurred in locations which receive broadcast television reasonably well; therefore, the need for cable television has been small. This limited success is the reason that this discussion is not related to current usage so much, but rather from the standpoint of cable television as a potentially important media device in the future.

The future of audio/visual communications in our daily lives can only be guessed, but all indications are that the need will continue to grow. All new cable television networks are being installed with two-way audio capabilities. That is, all transmission lines have the ability to transmit as well as receive audio signals in the form of voice or digital data transmission. Furthermore, the potential for two-way video is being studied and may someday also become a reality.

As an alternative source of communications, cable television offers numerous advantages, of which the following are the most important:

– The ability to isolate a particular area for service

– The potential for two-way audio/visual communication

– No need for antennas

The primary disadvantages of cable television relate to the reliance on the cable for transmission of the signal. The disadvantages include:

- The cable is subject to possible damage

- Overhead cables create adverse visual quality

The impact of cable television on Rancho Palos Verdes is currently very small. Due to the cooperation and coordination with telephone companies and electric company, the future impacts are expected to be identical to those incurred by the respective utilities (see "Electric" and "Telephone" sections of the infrastructure).

Broadcast Communications

Broadcast communications are those systems which have no infrastructural network to transmit signals, but rather transmit signals through the air-waves. Of the three primary broadcast systems, radio and television are by far the most popular, while microwave remains a more specialized communications medium.

Radio and television communication systems are operated by privately owned companies which supply "free" audio and audio/visual communication to those persons with appropriate receivers. These broadcast systems are used primarily for the dissemination of news and information and for entertainment. The use of radio and particularly television for educational purposes is growing. No resource facilities (transmission facilities) exist in Rancho Palos Verdes.

The County of Los Angeles currently owns and operates a microwave station near the intersection of Highridge and Crestridge Roads. The facility is a broadcast communication system designed to relay signals to and from the Rancho Palos Verdes area. The prime users of the facility are the County Fire and Sheriff Departments and other County agencies. Immediately adjacent to the County facility is the site of a proposed Southern California Edison (SCE) microwave facility to be completed in August 1975. The SCE facility will be primarily used to relay operational and administrative transmissions. (SCE- Draft E.I.R.)

The impact of broadcast systems in Rancho Palos Verdes is considered to be relatively small and related primarily to the adverse visual qualities of the microwave antennas and the widespread use of television antennas. Microwave facilities can be mitigated through the use of landscaping techniques. Television antennas can be mitigated through elimination.

Communication Systems Policies

It is the policy of the City to:

1 — Investigate the potential of cable communications systems as a source which could disseminate information and issues to communities and/or the City as a whole.

2 — Encourage the underground installation of cable communication network in all new developments.

Transportation Systems

The transportation component of the infrastructure consists of integrated networks and modes which provide for access and the conveyance of people and goods to, from, and within a given area. The varied functions, widespread usage, and conspicuous visibility make this component the most dominant and complex component of the entire infrastructure. Because of functional complexity and diversity of impacts, the transportation component must be looked at differently from the other infrastructure components. For example, other components are discussed primarily from the standpoint of the network, with little mention of distribution mediums, whereas the character of the transportation component requires that equal consideration be given both networks and their associated modes alike. Furthermore, some of the transportation networks and modes, unlike other infrastructure components, overlap physically as well as functionally.

The transportation infrastructure has been divided into three major elements. Each element is discussed in terms of the individual networks which make up an element and the modes which utilize these networks. The three elements include:

— Vehicular Networks

— Public Transportation

— Path and Trail Networks

It should be noted that, due to the nature of transportation systems, much of the subsequent discussion deals with the Palos Verdes Peninsula as a whole, rather than Rancho Palos Verdes alone.

Vehicular Networks

Rancho Palos Verdes residents, like most Southern Californians, rely on the automobile as the principal mode of transportation. This overwhelming dependence on the automobile has created a web of roads which currently covers large areas of the Peninsula and represents the major element in the locomotion system. Furthermore, evidence suggests that, while efforts are currently being made to reduce the dependence on the automobile, little or no change is expected to occur in respect to the need for vehicular networks in the foreseeable future.

The vehicular network is divided into four basic classifications: freeways, arterials, collectors and locals. While terminology may vary for each of the four Peninsula cities, analysis shows that the functional differences rarely vary.

Of particular concern in the development of this Plan has been its potential effects on adjacent and outlying communities. It was recognized at the outset of the planning process that the cumulative effect of Rancho Palos Verdes traffic on roads outside this jurisdiction is of mutual interest in respect to congestion and pollution. Therefore, the proposals and recommendations made herein reflect this concern.

Freeways

Currently, there are no freeways on the Peninsula, nor does it appear within the realm of possibility that any will ever exist. Peninsula residents, however, have access to and use the extensive freeway network which is so much a part of travel in Southern California. Both the Harbor and San Diego Freeways act as principal links to commuters and to distant points.

The State freeway plan proposes three new freeway extensions and/or segments for the South Bay area (Voorhees, pg. 47). They include:

— The El Segundo-Norwalk Freeway, extending east/west.

— The extension of the Artesia Freeway (east/west).

— The Route 107 Freeway, extending north/south from the San Diego Freeway to Pacific Coast Highway.

The final outcome of the proposals is tenuous at best and therefore were not considered to be of major importance to the development of this Plan.

Although no attempt is made here to provide a detailed assessment of the impact of Rancho Palos Verdes' residents to the freeway network, or the networks' combined impact on the Rancho Palos Verdes environment, it can be stated with a reasonable amount of certainty that each has at least a minor level of impact on the other. For example, the Peninsula residents who use the freeway network contribute some degree to congestion and smog which plagues Southern California. Likewise, the overall use of the Southern California freeway network contributes to air pollution, which in turn affects the air quality of the Peninsula. Both the congestion of freeways and deterioration of air quality can be mitigated through the development and use of an efficient public transportation system, carpooling techniques, and certain economic disincentives (gas tax, mileage surcharge, depletion of fossil fuels).

Arterial, Collector, and Local Streets

Of all the infrastructure components, the network of streets and associated components (parking) are the most dominant and complex of all service oriented systems. Rancho Palos Verdes, like all of Southern California, is almost totally dependent upon the system of roads on which our private and service vehicles function.

The most efficient street system is one that offers a variety of streets, each having its own functional characteristics. The classifications of such a street system are based on a functional hierarchy, often defined by little more than width, type of pavement, and traffic volume. The result of developing a street system purely on standardized design criteria would have a severe impact upon the unique and sensitive environments of the Peninsula and would limit the flexibility of design which can reflect the varied character of the cities and neighborhoods. The following are the functional characteristics assigned to the three street classifications:

- Arterial – The arterial street is the major street within the Peninsula hierarchy. It is the main channel for the movement of vehicles and is not intended to be a residential street; however, some older arterials do provide direct access to residential units (e.g., Palos Verdes Drive East and West). An arterial provides connections with other arterials and may eventually link-up with major highways.

- Collector – The collector street functions to conduct traffic between arterials and sometimes links with other collectors. It is a primary network within residential areas and can function well in a commercial area.

- Local – Local streets are minor networks, whose basic function is to provide access to dwelling units. Local streets can be designed so as to discourage through traffic. The design can reflect the individuality of a neighborhood.

The character of the existing street system on the Peninsula is a result of several factors. The first, and perhaps the most important, is geographical location. The fact that Palos Verdes is a peninsula has resulted in a situation that discourages most through traffic, thereby reducing the need for a major highway or freeway. Second, the early road system was designed to fulfill the needs of an area of semi-rural character. Evidence of this design is still found on the Palos Verdes Drives loop. Third, recent (pre-incorporation) development trends encouraged the development of new roads to maximum potential. In addition, the demand for the new roads, which supported new developments, was often satisfied with little regard to the Peninsula's existing character, community desires, or impact on neighboring cities.

An analysis of the existing street system within Rancho Palos Verdes indicates that, for the most part, the City is adequately served. There are problem areas; however, few reflect the capabilities of the street system to handle existing traffic demands. Recent traffic counts (County of Los Angeles) reveal three street segments within the City that are approaching estimated peak hour capacities (see Table 11). They are: Palos Verdes Drive South (w/o Palos Verdes Drive East), Hawthorne Boulevard (w/o Indian Peak Road), and Miraleste Drive (n/o Via Colinita). Palos Verdes Drive South is primarily impacted by heavy weekend traffic, whereas the Hawthorne and Miraleste segments are affected by rush hour traffic on the weekdays. Other problems which exist, and thereby affect traffic flow, are related to the deterioration of certain road segments, inadequate design; and modal conflicts. Examples of these problems include:

- Deterioration – The most obvious illustration of road deterioration is found on Palos Verdes Drive South, in the Portuguese Bend slide area. Despite unrelenting maintenance, earth movement has caused the roadway to be distorted, warped, and broken. The adverse road conditions found in this area impede smooth flowing traffic and are viewed as traffic safety hazards. From time to time, other areas of deterioration may occur; however, most are repaired immediately if it is determined that safety or flow is affected.

- Design — Inadequate street design includes poorly designed intersections, insufficient width, poor visibility, and inadequate control devices. The intersection of Palos Verdes Drive East and Palos Verdes Drive South/25th Street is an area which typifies this problem. Poor interesection design has resulted in traffic flow and safety problems.

- Modal conflicts — One of the most significant problems is that of the conflicts which arise due to various transportation modes (including pedestrians) using the same limited space. The conflicts which most often occur are between motorists — pedestrian, motorist — bicyclist, and pedestrian — bicyclists. Certain areas of the City also experience conflicts between equestrians and motorists (primarily on the East side).

Visual appearance is also recognized as a problem; however, this factor rarely, if ever, affects traffic flow or safety. Currently several major streets within the City are unattractive and bland asphalt corridors. An example of the sterile quality of many streets is exemplified by certain segments of Hawthorne Boulevard and Crenshaw Boulevard. (Landscaping techniques for streets and other activities will be more thoroughly discussed in a subsequent document: Urban Design.)

The street system on the Peninsula as a whole functions adequately during normal traffic hours, however some are currently operating at, near, or over estimated peak hour capacity (see Table 11). Palos Verdes Drive North and associated intersections (at Hawthorne Boulevard, Silver Spur Road, Crenshaw Boulevard, Western Avenue, and Palos Verdes Drives West and East) are the most heavily impacted. Palos Verdes Drive North from approximately Silver Spur Road to Palos Verdes Drive East is considered to be a "capacity-deficient arterial" based on a recent transportation study prepared for the South Bay Corridor Study Steering Committee by Voorhees and Associates (pg. 34). The City of Rolling Hills Estates, knowing the existing congestion problems, has proposed that Palos Verdes Drive North be improved to absorb existing and future traffic. Palos Verdes Drive West, within Palos Verdes Estates, is also an area of concern. Between Bluff Cove and Malaga Cove, Palos Verdes Drive West is a winding two-lane road which acts as a major ingress/egress route for Rancho Palos Verdes. There are plans to increase traffic capacity of the triangular intersection at Palos Verdes Drive North, and thereby improve traffic flow; however, these plans do not include the major portion of the two-lane segment.

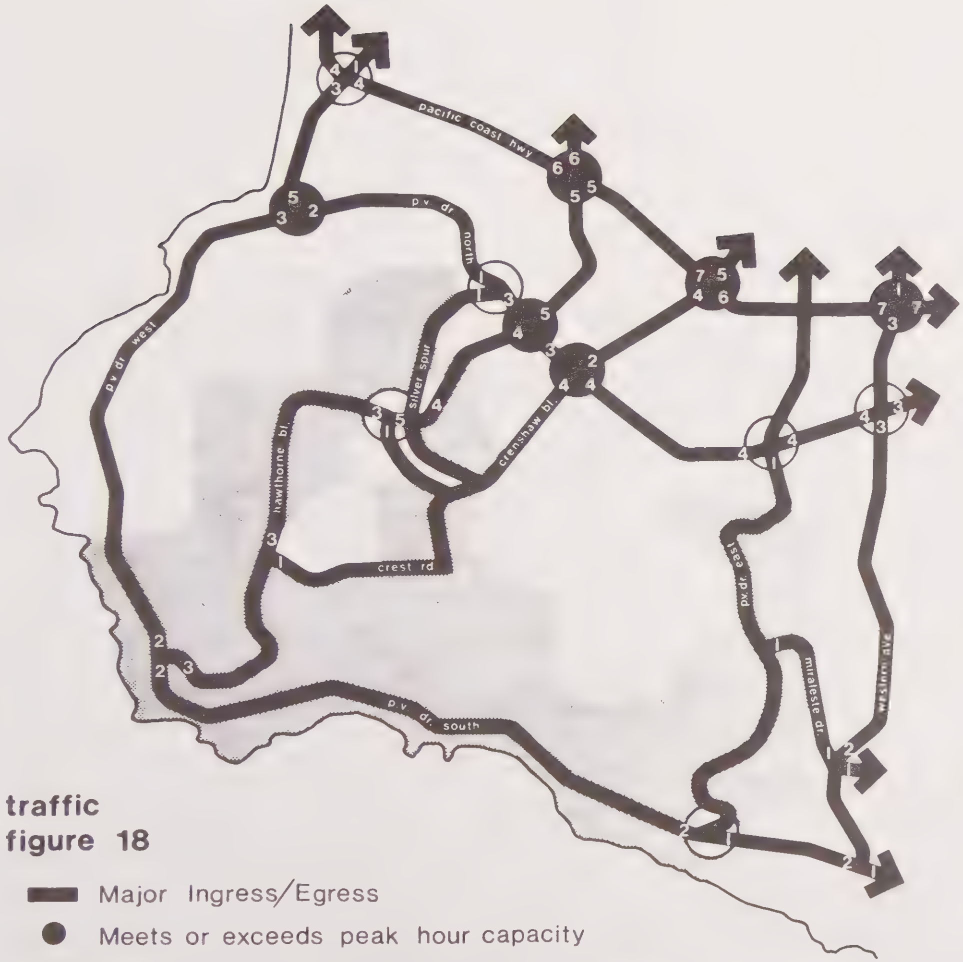
Peninsula Center is a sub-regional scale commercial center located in the City of Rolling Hills Estates. Although the Center is in Rolling Hills Estates, portions of four streets which serve as major ingress-egress points are within the jurisdiction of Rancho Palos Verdes. At its present stage of development (approximately 50%), the level of traffic which is generated by the Center is not beyond the estimated capacities of the affected roads. Traffic analyses indicate that Hawthorne Boulevard is the street most heavily impacted by the Center. At full development, however, the Center is expected to generate significant traffic increases which will heavily impact adjacent streets. Similarly, to the southwest of the Center lies a part of Rolling Hills Estates with a different character, but which is also dependent on Rancho Palos Verdes roads for major access. The area is principally residential (existing and proposed), with a scientific research center of approximately 40 acres located at the southern-most limits. The streets immediately adjacent to the area are currently functioning adequately throughout all periods of the day. When present and future traffic generating factors are combined, however, the streets may become impacted.

TABLE 11

Traffic Analysis

ON	AT	1974 24 Hour Traffic	Morning Peak Hour Outbound	Morning Peak Hour Total	Current Outbound Capacity	Percent Capacity	Projected Peak Hour Volume	Projected Outbound Capacity	Projected Percent Capacity
AT/ON CORDON LINE									
Crenshaw Blvd.	s/o P.V. Dr. N.	20,000	1,180	1,790	2,100	56%	1,377	2,100	66%
Hawthorne Blvd.	s/o P.V. Dr. N.	23,600	1,325	1,685	2,100	63%	1,545	2,100	74%
Miraleste Dr./ 9th Street	w/o Western Ave. (via Colinita)	9,000 (1973)	630	840	800	79%	737	800	92%
P. V. Dr. East	s/o P.V. Dr. N.	9,850 (1973)	650	870	700	93%	758	700	108%
P. V. Dr. North	w/o Crenshaw	16,100 (1973)	790	1,375	800	99%	924	1,700	54%
P. V. Dr. North	w/o Hawthorne	17,000 (1973)	1,450	1,755	800	181%	1,697	1,700	100%
P. V. Dr. North	e/o P.V. Dr. E.	24,650 (1973)	1,470	2,025	2,100	70%	1,720	2,100	82%
P. V. Dr. North	w/o Silver Spur	12,400 (1973)	490	895	800	61%	573	1,700	34%
P. V. Dr. North	w/o Western	24,100	1,720	2,370	2,100	82%	2,007	2,100	96%
P. V. Dr. West	w/o P.V. Dr. N.	25,100	1,500	2,250	800	188%	1,755	1,700	103%
Silver Spur Rd.	s/o P.V. Dr. N.	12,700 (1973)	770	990	800	96%	898	800	112%
Western Ave.	s/o P.V. Dr. N.	24,700	1,125	1,630	2,100	54%	1,316	2,100	63%
25th Street	w/o Western Ave. (P. V. Dr. East)	7,200	475	635	800	59%	556	800	70%
WITHIN CORDON LINE									
Hawthorne Blvd.	w/o Indian Peak	27,100	1,575	1,980	2,100	75%	1,843	2,100	88%
Silver Spur Rd.	n/o Montemalaga	9,700 (1973)	560	750	800	70%	655	800	82%

Beyond the Peninsula, the area generally referred to as the South Bay (Redondo Beach, Torrance, Lomita, Hermosa Beach, portions of Los Angeles City and County, etc.) has many streets which are currently nearing, equalling, or exceeding traffic capacities. The capacity-deficient arterials which are of major concern to this analysis include: Pacific Coast Highway, Crenshaw Boulevard, Hawthorne Boulevard, Gaffey Street, and Palos Verdes Boulevard (Voorhees, pg. 34). Aware of the serious nature of traffic problems, many South Bay cities have proposed new roads and/or more efficient control devices to alleviate congestion. The streets most heavily impacted by Peninsula generated traffic lie almost totally within Torrance and the San Pedro area. The Circulation Element of the Torrance Comprehensive General Plan (August, 1974) calls for the development of new streets and the up-grading of some existing streets. Analysis suggests, however, that while these problems will relieve the internal street system of Torrance, only minor beneficial effects will result on those streets most heavily impacted by Peninsula-generated traffic. Discussions with representatives of Los Angeles City's Community Planning Division (San Pedro) indicate no major street proposals are pending which would significantly change traffic in the San Pedro area.



traffic
figure 18

- Major Ingress/Egress
- ● Meets or exceeds peak hour capacity
- ○ Nearing peak hour capacity (80% or greater)

1	<10,000 vehicles per 24 hours
2	10,000 – 15,000 "
3	15,000 – 20,000 "
4	20,000 – 25,000 "
5	25,000 – 30,000 "
6	30,000 – 35,000 "
7	35,000 + "

Based on community goals, analyses of existing traffic data, and a review of related plans and proposals, the following two factors emerged as significant land use and transportation planning criteria (as they specifically pertain to the vehicular networks portion of the Transportation Section):

- Preservation of a unique semi-rural character is desired and can partially be achieved through the development of a flexible system of roads, rather than a standardized system.

- The impact of a greatly increased population could be devastating to traffic flow on specific major streets on the Peninsula and South Bay.

An analysis of such factors as existing land use and circulation, proposed land use, and projected population, coupled with the goals of the community, has resulted in a vehicular network which calls for no new arterials or collectors. Depending upon future development trends and subdivision techniques, additional collectors may be added to the Plan. No rights-of-way acquisition costs are anticipated.

Listed below are the arterial streets. Some segments are outside the jurisdictional boundaries of Rancho Palos Verdes; however, they are of integral importance to the Peninsula network (listed in alphabetical order).

- Crenshaw Boulevard (north/south arterial, from Crest Road northward)

- Crest Road (east/west arterial from Hawthorne Boulevard to Crenshaw Boulevard)

- Hawthorne Boulevard (north/south arterial from Palos Verdes Drive West, northward)

- Highridge Road (north/south arterial from Hawthorne Boulevard to Crest Road)

- Miraleste Drive/9th Street (north/south arterial from Palos Verdes Drive East to Western Avenue)

- Palos Verdes Drive East (north/south arterial from Palos Verdes Drive South to Palos Verdes Drive North)

- Palos Verdes Drive North (east/west arterial from Palos Verdes Drive West to Palos Verdes Drive East)

- Palos Verdes Drive South/25th Street (east/west arterial from Palos Verdes Drive West, eastward)

- Palos Verdes Drive West (north/south arterial from Palos Verdes Drive North to Palos Verdes Drive South)

- Silver Spur Road (north/south arterial from Hawthorne Boulevard to Crenshaw Boulevard)

Within the City of Rancho Palos Verdes, the following streets serve as collectors. Some segments are not within the jurisdiction of Rancho Palos Verdes; howevever they are listed as continuous segments.

- Crest Road (east/west collector from Crenshaw Boulevard to Palos Verdes Drive East. A large section of Crest Road is a private, gated road located within the city of Rolling Hills.)

- Ridgegate Drive and Granvia Altamira (north/south collector from Highridge Road northward)

- Indian Peak Road (north/south commercial collector from Crenshaw Boulevard to Hawthorne Boulevard)

- Montemalaga Drive (east/west collector from Silver Spur Road westward)

- Silver Spur Road (north/south collector from Hawthorne Boulevard to Palos Verdes Drive North)

Although local streets are not listed, all are recognized by this Plan. Generally speaking most local streets met specifications set by the City and are in good condition.

Presently there are 49 private streets within the City of Rancho Palos Verdes. The design and maintenance of private streets is not the responsibility of the City, and therefore these streets may or may not meet accepted design standards, and in some cases are not in keeping with customary maintenance standards. Private streets generally result

from two actions. The first and most frequently used method of initiating private streets is through the initial development process. Under this method, the streets are developed as part of a subdivision; however, they are not dedicated to the City as public rights-of-way, but rather remain the property of the homeowners. The second method is through a relatively complex conversion technique. Primarily generated by community desire, converting a public street to a private street (and vice versa) is subject to detailed examination and must be approved by the City Council.

Table 11 is an analysis of present traffic volumes (Los Angeles County) and projected traffic volumes for selected locations on the Peninsula. The traffic projections were derived through a Rancho Palos Verdes staff analysis which is intended to illustrate the impact of the General Plan proposals on selected streets. The first part consists of existing and projected traffic data at/on a cordon line drawn along Palos Verdes Drive North and Western Avenue. The second part is an analysis of selected streets within Rancho Palos Verdes which were determined to be of major concern to existing and future traffic flow. The capacities are based on the Los Angeles County Road Department standard for service level "C," which is considered suitable for design practice.

On a Peninsula-wide basis, the streets most heavily impacted by the proposals in this Plan are expected to be three streets just inside the cordon line. Based on traffic projections, Palos Verdes Drive East (s/o Palos Verdes Drive North), Palos Verdes

Drive West (w/o Palos Verdes Drive North), and Silver Spur Road (s/o Palos Verdes Drive North) may exceed estimated capacity at peak hour. Furthermore, projections indicate that the following locations will approach or equal peak hour capacities: Palos Verdes Drive North (w/o Western Avenue), Miraleste Drive/9th Street (w/o Western Avenue), Palos Verdes Drive North (e/o Palos Verdes Drive East), Palos Verdes Drive North (w/o Hawthorne Boulevard), Silver Spur Road (n/o Montemalaga Drive), and Hawthorne Boulevard (w/o Indian Peak).

As an auxiliary function of the transportation system, the parking of vehicles is essential. Parking can be provided through variations of two basic methods. On-street parking generally includes the use of one or both sides of the street and/or the use of parking bays. Off-street parking includes lots and structures (above and below grade — garages, ports, and ramp structures). An analysis of the various parking techniques reveals that, while on-street parking is normally less expensive and sometimes more convenient, off-street parking is generally more desirable due to lessening of adverse visual impacts, traffic congestion, and safety hazards. The City currently has no major parking problems, although some areas do experience adverse conditions from time to time (e.g., streets adjacent to Rolling Hills High School, at Rancho Palos Verdes Park, and on Palos Verdes Drives West and South). No significant parking problems are anticipated as a result of this Plan; however, as part of the Specific Plan for the coastal area, careful attention should be given to potential problems.

Directly associated with the issue of parking is that of the accommodation of trailers and other special purpose/limited use vehicles (recreational vehicles). The parking of recreational vehicles is a complex issue that grows continuously. Traditionally, recreational vehicles have been parked either on the street or on the property of owners (front yards, side yards, rear yards and driveways). More recently, due to increasing popularity, specific recreational storage and maintenance areas have been established by developers and cities. Currently, within the City, there are no major problems related to recreational vehicle storage, but existing scattered visual clutter and safety impacts (fire hazard and emergency access) multiply with every new recreational vehicle added, and could conceivably generate significant problems.

The impact that the roadway system and associated modes have on the environment is probably only second to the placement of structures on the land. Environmental impacts fall into 2 main categories and are discussed more specifically below, as are possible mitigating measures.

Public Transportation

Air pollution on a local level is almost entirely induced by vehicles using Peninsula streets, and, although various characteristics allow for relatively good air quality, the responsibility to southland neighbors cannot be overlooked. There are various methods which will assist in the reduction of air pollution. One method includes the development of more efficient public transportation network. Another is to avoid the unnecessary installation of traffic lights, and, where they are needed, the development of efficient timing schedules.

Excessive noise is an adverse impact which is difficult to mitigate except at the source, which, in the case of vehicles, is extremely difficult to accomplish at the local level. There are three techniques which can be implemented at the local level. The first and perhaps the easiest to implement on existing roads is the use of landscaping techniques (e.g., berms and dense foliage). Air space also helps attenuate noise; therefore, development should take place at reasonable setbacks from roadways, particularly arterials. The elimination of frequent and unnecessary stops reduces noise caused by accelerating traffic. (See Noise section.)

The Los Angeles metropolitan area has one of the most extensive and complex auto-oriented networks within any highly urbanized area in the world. This, however, has very often been accomplished at the expense of certain segments of the population, the environment, and the economy. Needless to say, the Los Angeles metropolitan area's dependence upon the automobile has resulted in a seriously out-of-balance transportation system. The Palos Verdes Peninsula is characteristic of this unbalanced locomotion system and, as studies have indicated, perhaps to a greater degree than other areas. It is interesting to note that plans for the original City of Palos Verdes Estates called for an extensive rail system; however, the idea was later abandoned.

An analysis of existing public transportation activities on the Peninsula verifies previous studies which suggest the inadequacy of service. Currently, the Peninsula is served by very limited bus service (standard and "subscription"), taxi cabs, and the Thumb Taxi. The Southern California Rapid Transit District has one year-round line which runs on a limited schedule from the Marineland and Peninsula Center areas to downtown Los Angeles. Also provided by the Rapid Transit District is a service known as the Rapid Transit District "Personalizer" Subscription Service which allows users to buy a guaranteed seat on a bus which runs from the Peninsula Center and adjacent points to the Los Angeles core area. Taxi service is available on the Peninsula; however, due to the relatively high expense, few residents rely on this system for daily transportation needs. The Thumb Taxi is a service provided, on a limited schedule, for the transportation needs of Peninsula youth.

public transit

figure 19

palos verdes peninsula

Path and Trail Networks

The environmental impacts of existing transportation systems to Rancho Palos Verdes are considered to be insignificant, due to limited service and use of existing networks. If viewed from the perspective of the lack of service, however, the impacts are indeed significant. This is because the majority of potential public transportation users are forced to use the private auto (see Vehicular Networks), the results of which add to existing problems, such as noise, air pollution, and use of a non-renewable natural resource. The development of a viable public transportation system is then a mitigating tactic that can be used to reduce impacts posed by the overuse of the private automobile.

Studies being prepared by various agencies and committees are addressing the need for additional bus service. Southern California Rapid Transit District (SCRTD) is well aware of the service problems existing on the Peninsula, and indications are that plans to alleviate the problem are being developed. On a more localized level, the South Bay Corridor Study Committee of the South Bay Cities Association has prepared the first phase of a study which indicates the essential public transportation needs of Rancho Palos Verdes. The second phase will develop implementation strategies for major problems.

As an integral part of the locomotion component of the infrastructure, walkways, bikeways, and equestrian trails make up the classification referred to in this Plan as "Path and Trail Networks." The importance of path and trail networks and their associated modes in the development of a balanced locomotion system cannot be underestimated. Of particular concern in this regard are bikeways and walkways. In addition to satisfying obvious recreation demands, as do equestrian trails, the potential of bikeways and walkways as functioning transportation networks is becoming increasingly evident.

On a localized level, the importance of path and trail networks is obvious in terms of recreation and transportation capabilities. It should also be remembered, however, that the recreational and environmental amenities found on the Peninsula are of regional significance; therefore, the various path and trail networks should be designed to reflect the local and regional demands, while maintaining the unique character of the Peninsula.

An analysis of existing path and trail networks within the City of Rancho Palos Verdes indicates a condition of broad deficiencies in almost all respects. Although a "Bikeways Plan" (adopted March 4, 1974) does exist, no portion of the Plan has of yet been implemented, Urban walkways (sidewalks) exist; however, no effort has been made to identify major transportation or recreation linkages, nor has there been any effort to develop a system of designated non-urban trails oriented toward providing access to the natural environment. No designated public equestrian trails exist in Rancho Palos Verdes.

The situation with respect to the Peninsula, as a whole, is much the same as with Rancho Palos Verdes. Bikeways are being studied, but little in the way of developing a functioning system has been done. Walkways, both urban and non-urban, are in a similar state. Equestrian trails, on the other hand, have been developed in a somewhat logical manner, and in many cases, are officially designated.

The result of the state of walkway, bikeway, and equestrian trail networks is not the loss of such systems for transportation or recreation, for people will use whatever is at their command, but rather the confusion and safety problems posed by the competition and conflict between the various locomotion modes, when using a single multi-use network (e.g., streets, for automobiles, bicycles, horses, and pedestrian travel).

The bikeways, walkways, and equestrian trails Plans which follow are submitted as conceptual Plans. The Plans are designed to act as the first step in a process that will involve the development of more detailed Plans in the near future. The discussion which accompanies the various Plans serves as a framework for continuing planning by providing the scope and potential of each of the associated modes.

The walkways, bikeways, and equestrian trail alignments should be essentially considered from an "Arterial" or "Collector" standpoint. It should be recognized that the

alignments are flexible, and may be subject to rerouting and perhaps even elimination. By the same token, however, it may become evident through time that more should be added.

The proposed path and trail networks, while functioning as transportation systems, also constitute a major addition to existing and proposed recreation facilities by functioning as linear recreation facilities, and by acting as linkages between various types of recreational and educational activity areas.

Because of physical and jurisdictional characteristics found on the Palos Verdes Peninsula, the three proposed networks include some segments which are not within the domain of Rancho Palos Verdes. The intent of showing such alignments is to illustrate the potential for a Peninsula-wide network. The coordination and cooperation of the Peninsula cities, the City of Los Angeles, and the County are essential in the realization of a quality system of path and trail networks. In addition to the coordination of the various agencies in the development of network alignments, coordination of construction standards, design criteria, and signing is also necessary. It should be noted that network segments outside the jurisdictional limits of Rancho Palos Verdes are routes which constitute an integral part of a Peninsula-wide system.

Changing attitudes and demands for the various types of recreation and transportation activities make an accurate appraisal of future demand extremely difficult to derive. An analysis of recent trends indicates an increased demand for recreation and transportation networks.

Transportation networks impose environmental impacts wherever they are located. It is felt that, in the case of path and trail networks, positive effects often outweigh the negative effects. This is due, in part, to the fact that, without such designated trail systems, the result in the urban environment would be excessive conflict and competition for network space, and in the natural environment, the lack of designated trails would allow for unrestrained disruption of delicate eco-systems. Aside from the advantages of having a designed network, there are adverse environmental impacts that must be mitigated. Within the urban environment the adverse impacts are considered minimal, with the possible exception of visual character. Too often, the development of the urban bikeway or walkway is little more than a widening of the roadway. Mitigating techniques which can be used to soften the appearance of the network include:

- Buffering of individual transportation networks with appropriate landscaping
- Varying the texture of network surfaces
- Using meandering alignment patterns where possible

The impacts of trail systems to the natural environment can be severe. The cutting of a trail through the natural environment causes damage which is, in many cases, irreversible. Irreversible is the disruption of an ecosystem through the removal of natural vegetation, altering of wildlife routes, and introduction of foreign elements (litter, horse manure, signs, etc.). Mitigating these impacts is of prime concern to the City of Rancho Palos Verdes and its residents; therefore the following techniques can be used:

- Strict control of use, through ordinance and regulations
- A thorough education program, designed to instruct Peninsula residents on natural systems
- The use of appropriate trail engineering techniques to avoid soil erosion, excessive compaction, and degradation
- Protection of rare or endangered wildlife and vegetation habitats through avoidance
- On-going maintenance programs should be established (possibly using volunteer help from service organizations, e.g., Scouts, riding clubs, nature groups)

Bikeways

While bicycling has, for many years, provided a popular mode of recreation and transportation for limited segments of our population, an unprecedented growth of bicycling has recently occurred in all segments of our population, and evidence suggests that this growth trend will continue.

Rancho Palos Verdes, like most cities, desires to establish a bikeways network of superior quality. Analysis of the physical and jurisdictional character of the Palos Verdes Peninsula indicates, however, that a quality system can be enhanced through the joint cooperation and coordination of the Peninsula cities and the County. It is with this in mind that the Rancho Palos Verdes bikeways network is proposed as a conceptual Plan and, therefore, is intended to offer only an interim solution, and perhaps act as a model for the development of a Peninsula-wide bikeway network study and subsequent plan.

The benefits of bicycling to cyclists and non-cyclist alike are:

- Bicycling provides a healthy form of exercise to people of varied ages
- Bicycles provide a relatively inexpensive mode of transportation and recreation to the cyclist
- They do not require fuel
- Bicycles require little space for movement and parking
- Bicycles, when used for commuting, contribute to the reduction of traffic congestion and pollution (noise and air) for the whole community

While the benefits derived through the expanded use of bicycles are impressive, the problems, too, for the average bicyclist, are of significant magnitude to warrant consideration:

- Topographic characteristics
- The time and distance factors for a one-day trip are considerably better for automobiles and buses than for bicycles
- Carrying capacities are limited on bicycles
- Speed differences contribute to automobile/bicycle and bicycle/bicycle conflicts
- Right-of-way conflicts exist between pedestrian and cyclist, automobile and cyclist, and equestrian and cyclist
- Lack of proper education for cyclists, motorists, and pedestrians

The conceptual Plan proposed is based on analysis of existing bikeway plans, background material, environmental considerations, and related goals established by the Rancho Palos Verdes General Plan Goals Committee (September 1974).

Simply stated, the proposed bikeways network consists of an integrated dual system (transportation/recreation) which forms concentric loops (approximately), radial branches connecting the primary loops, and several bypasses.

The principal components of the network is the Peninsula loop. The Peninsula loop would serve cyclists from both a recreation and transportation aspect and should be designated as such. The basic configuration of this loop has long been recognized as an ideal transportation and recreation route by cyclists and interested agencies. Although no formal path exists, cyclists currently use the proposed route for circling the Hill. Study shows that the loop is recommended in the County's Preliminary Plan for Bicycle Routes, and portions of the route are included in bikeways studies currently being done by Peninsula cities. The following streets are suggested as probable alignments for this major loop. Included also, are brief descriptions of the streets.

- Palos Verdes Drive West – This alignment is a relatively flat segment. It is a divided roadway except for the northern portion, where it is rather narrow.

– Palos Verdes Drive South/25th Street – This alignment extends from Palos Verdes Drive West to Western Avenue. It is, for the most part, a flat road, with the exception of the irregular and bumpy pavement in the slide area. The condition is expected to remain until such time as the slide stabilizes or construction techniques can overcome the constant earth movement in the area.

– Western Avenue – The Western Avenue alignment runs from 25th Street (in Los Angeles) to the intersection of Palos Verdes Drive North. This wide and level roadway offers good bikeway potential. (It should be pointed out that, although Palos Verdes Drive East relates more to the character of the Peninsula than that of Western Avenue, the narrow and curving nature of Palos Verdes Drive East does not make it suitable for most cyclists. Due to the importance of Palos Verdes Drive East as a major transportation route on the East side, additional study should be given to the incorporation of this street into the Bikeways Plan as a radial segment.)

– Palos Verdes Drive North – The Palos Verdes Drive North segment extends from Western Avenue to Palos Verdes Drive West. This alignment, too, is relatively level, and is divided throughout most of Palos Verdes Estates.

Within Rancho Palos Verdes, the potential for developing a system of Peninsula loop by-passes for scenic and coastal bluff access is excellent. The coastal bluff open space area, proposed as part of the specific Plan District provides a linear open space in which a bikeway could easily be placed. The exact by-pass alignment will be determined through further study; however, the following are offered as a conceptual design:

– An excellent by-pass exists for the bluff area between the Rancho Palos Verdes/Palos Verdes Estates boundary and a proposed County park facility at Point Vicente (abandoned Rifle Range).

– A loop by-pass potential exists east of Marineland on a series of streets running through a small residential area. The approximate by-pass alignment would include Seawolf Drive, Beachview Drive, Nantasket Drive, and Sea Cove Drive.

– A third by-pass is proposed for an area southeast of the lower Portuguese Bend Club. The approximate alignment of this by-pass would extend from the edge of the Portuguese Bend Club along the coastal bluff open space, run parallel to and eventually merge with Paseo del Mar, and then northward to the main Peninsula loop.

The other major component of the bikeway network is what will be referred to as the Hilltop bikeway loop. Situated near the geographical center of the Peninsula, the Hilltop loop takes in portions of Rancho Palos Verdes and Rolling Hills Estates. This loop is concentric to the larger Peninsula loop and would also function both in a recreational and transportation nature. The loop is designed to provide access to major employment centers (Peninsula Center and Northrop), as well as activity areas such as schools, and existing high density residential nodes. The approximate alignment for the Hilltop loop is described below:

– Hawthorne Boulevard – Hawthorne Boulevard, from Indian Peak Road to Crest Road, represents the major segment of the Hilltop loop. It is a moderately sloping, divided road which is currently used by cyclists.

– Crest Road – This segment extends from Hawthorne Boulevard to Crenshaw Boulevard. As a proposed arterial, any future widening should incorporate a bikeway into the design. The slope is relatively flat, except for the western-most portion, where it is moderate to steep.

– Crenshaw Boulevard – Crenshaw Boulevard is included in the Hilltop bikeway loop almost totally from the transportation viewpoint. Although it is the shortest segment, it is by far the steepest, and therefore is primarily intended for access on and off the Hill and for use by experienced cyclists.

– Indian Peak Road – The Indian Peak alignment is a relatively level segment running from Crenshaw Boulevard to Hawthorne Boulevard. Its primary function is to serve as access to the linear commercial activity area through which it flows.

Directly associated with the Hilltop loop is a network of by-passes, which function as both recreation and transportation routes. They include:

— Highridge Road — The Highridge Road by-pass extends from Hawthorne Boulevard to Crenshaw Boulevard. It is somewhat flat, with a moderate grade near Hawthorne Boulevard. Its relationship to various activity areas makes it an important transportation segment.

— A loop by-pass of excellent scenic and recreational value is proposed to run along the ridgeline south of Crest Road. The precise alignment would be determined upon further study; however, it is recommended that the bikeway run parallel to a proposed footpath. The by-pass would run from the intersection of Crest Road and Crenshaw Boulevard, on Crenshaw extended (south) to a point south of Whitley Collins Drive, where the route would leave the road and parallel the ridgeline at a safe distance. The by-pass would eventually merge with the Crest Road loop segment at a point near the east Northrop entrance.

— A non-continuous scenic by-pass is proposed to extend along Crenshaw Boulevard and its undeveloped right-of-way, from Crest Road to a point approximately one-half mile from the Crest intersection, where it would cul-de-sac. This bikeway segment would also run parallel to a footpath.

The system of radial bikeway segments is designed to link the two loops and provide access to the various activity areas on and off the Peninsula. These bikeway segments are discussed primarily from a transportation point of view, in the realization that most radials are of such a nature that only the most dedicated physical fitness buffs and recreationalists will use them for "pleasure." Furthermore, it should be pointed out that cyclists using these radials should be made aware of the potential problems that may occur on intermittent portions of the bikeway.

— Hawthorne Blvd. — While portions of Hawthorne Blvd. are relatively flat (primarily associated with the Hilltop loop), most of the two Hawthorne radial branches are steep enough to be beyond the capabilities of many cyclists. The northern radial not only links the two loops, it provides egress from a transportation link from the Peninsula loop to the Hilltop loop.

— Silver Spur Road — Silver Spur Road also acts as a transportation link between the two loops. The characteristics of the road include steepness and narrowness in some areas.

— Crenshaw Blvd. — From its intersection with Silver Spur Road, Crenshaw Blvd. slopes abruptly to Palos Verdes Drive North. This linkage is primarily transportation oriented, as is the less steep slope toward Torrance. The latter portion, however, provides access to two major recreation facilities, the existing South Coast Botanical Gardens, and the future Regional Park site.

— Palos Verdes Drive East — This street functions as the principal transportation route on the East side. This route would serve several schools, recreation areas and a commercial center. (The existing configuration and other trail proposals warrant further study before final commitment is made.)

In addition to the quality of the bikeways network itself, the success of the system may, in part, be determined by the availability of support facilities that are associated with cycling. Support facilities generally include bicycle parking facilities and human convenience facilities (restrooms, water fountains, etc.). Bicycle support facilities are most often found at major destination points, such as schools, parks, and commercial locations; however, some of the more popular, yet less structured destination points such as vistas, bikeway forks, and beach accesses may require such facilities. The preparation of the final bikeways plan should include a complete inventory of the availability of support facilities, an analysis of potential locations, and acquisition/implementation techniques.

conceptual bikeways network

figure 20

palos verdes peninsula

While no attempt is made here to designate specific designs for each segment of the bikeway network, the following factors might be considered in the establishment of the final design.

- The most efficient, safe, and enjoyable bikeway system completely separates conflicting locomotion modes.
- When designed on the street, bikeways should flow with traffic and should be designated with painted indicators or signs, rather than curbs or other physical devices.
- Parking should not be allowed on bikeways.
- Scenic and recreation routes should be sufficiently far enough away from bluff and canyon-hazard areas.
- Whatever the design, a system of standardized signs should be established throughout the Peninsula. (It is also suggested that, in coordination with the signs, a schematic bikeways map be included with perhaps a color code to indicate location and degree of difficulty.)

Walkways

The most basic of all the transportation systems, walkways, usually is the system least often considered in the development of the Circulation Element. Likewise, when discussing locomotion modes, foot travel is often totally ignored. Fortunately, an increased environmental awareness has been paralleled by an increased awareness of the overall desirability of self-locomotion (walking, jogging, and hiking). Although the visible evidence of the growing popularity of walking is not as obvious as bicycling, it is there, particularly with the more specialized derivations of foot travel, such as hiking and jogging.

The importance of a system of walkways in the establishment of a balanced transportation network is critical. Therefore, as with the other path and trail systems, the intent of the walkways discussion is to act as a conceptual guide, to be subsequently followed by a more detailed walkways plan. This is due, in part, to the feeling that:

- More detailed investigation of design standards and acquisition techniques must be performed.
- Greater coordination with adjacent cities and the County is needed.
- Adoption of several pertinent plans, vital to policy and location, must be completed (e.g., California Coastal Zone Conservation Commission Coastal Plan, and specific plans suggested in this document).

The proposed walkways network is a lengthy, web-like system designed to function in various capacities and serve the varying needs of Peninsula residents and visitors. The walkways network functions as a dual-purpose system, providing linear paths for transportation and recreation. The design and location of an individual segment is determined by the relationship to its environ, the projected use, linkage capabilities, and access capabilities.

The walkways plan consists of two dominant components: urban trails and non-urban trails. The first and most important to Rancho Palos Verdes residents is the system of urban trails (existing and future sidewalks), which act as primary transportation linkages. Non-urban trails, even though of less importance to the utilitarian needs of residents, provide a vital link to the more natural environs for residents and visitors.

The most dominant feature of the proposed walkways network is the system of existing and future sidewalks, which are, in most cases, part of urban activity and closely associated with streets. Due to the number of sidewalks within Rancho Palos Verdes, no attempt is made here, nor in graphic form, to identify all such walkways. Rather, only those sidewalks which function as major transportation linkages are identified. While the transportation function of sidewalks is fundamental, activities such as jogging and casual walking play an equally important role. Furthermore, whether right or wrong, sidewalks often function as auxiliary recreation facilities, such as skateboarding and children's play. Urban trails are generally

characterized by hard surfaces (concrete or asphalt) and continuous configuration; exceptions may exist, however.

The other feature of the walkways plan includes a network of designated non-urban trails used principally for recreation purposes. Day hiking and pleasure walking normally make up the functional activities which take place on these trails, although they may sometimes be used for commuting purposes. Seldom associated with the street system, the majority of trails extend from urban/natural interfaces into the natural environment, and back to interface areas. The character of non-urban trails is usually that of a configuration which best suits the topography and a surface of either natural or man-made materials.

As previously stated, the design of walkways is dependent upon several factors, with the character of surrounding environs and function being of prime consideration. It is with this in mind that the following recommendations are made. (Further, more detailed discussion of walkway treatment will be addressed in a forthcoming community design element.)

- All walkways should be physically separated from other movement systems.

- Wherever possible, urban trails should be designed in a curvilinear configuration and enhanced with landscaping.

- In areas of environmental significance (canyons, bluffs, ridgelines), trails should be maintained as natural (dirt) pathways.

- Trail configuration should reflect natural topography.

- In areas of natural surroundings, the use of any trail landscaping treatment should reflect the natural character of which it is a part.

- The use of textured surfaces on man-made paths should be encouraged.

The development of the walkway alignments proposed is based on study of existing walkways, field analysis of non-urban paths, environmental characteristics, and goals established by the General Plan Goals Committee. Some of the major alignments discussed in this conceptual Plan are outside Rancho Palos Verdes. They are included, however, to illustrate the potential for a continuous and integrated Peninsula walkways system.

Much like the proposed bikeway system, the configuration of the walkway system takes the form of two concentric loops and associated radial connecting branches, which are primarily urban trails, and a system of non-urban trails functioning as scenic/recreation by-passes.

Of major consequence to the locomotion functions of the entire Palos Verdes Peninsula is the walkways loop made up of paths paralleling Palos Verdes Drive West, Palos Verdes Drive South, Palos Verdes Drive East, and Palos Verdes Drive North. Although this loop is specifically designated as an urban trail, the existing and potential character of the loop suggests that it should not be treated in the manner traditionally associated with urban trails, but rather in the softer more natural approach, as can currently be seen along portions of Palos Verdes Drives North and West (in Palos Verdes Estates).

Other urban trails parallel Hawthorne Blvd., Crenshaw Blvd., Crest Road, Highridge Road, Silver Spur Road, Indian Peak Road, Montemalaga Drive, and Miraleste Drive. A major loop is formed near the geographical center of the Peninsula by portions of Hawthorne Blvd., Crest Road, Crenshaw Blvd., and Silver Spur Road. The remaining urban trail routes function as transportation/recreation networks which link to major activity nodes, to the two major loops, and to areas off of the Peninsula. While further study is needed to determine the final design and treatment of all urban trails, Miraleste Drive and Crest Road deserve special and immediate attention — Miraleste Drive, because of its existing unique character, and Crest Road (from Hawthorne Blvd. to Crenshaw Blvd.), because of the exceptional potential to create a locomotion corridor equaling or surpassing the beauty and function of Palos Verdes Drive North (in Palos Verdes Estates). Crest Road within the City of Rolling Hills could provide a vital walkways linkage from the center of the Peninsula to the Miraleste area.

The unique character found in most undeveloped land, as well as some developed areas in Rancho Palos Verdes, allows for the development of a system of designated non-urban trails which few cities in the South Bay can equal. While the function of the non-urban trails is almost entirely one of providing access to and through passive open space areas, the environments through which the user passes are of two distinct types. The two types include a coastal bluff system and a ridgeline/arroyo system. Both systems begin and end at interface areas, usually associated with an urban trail.

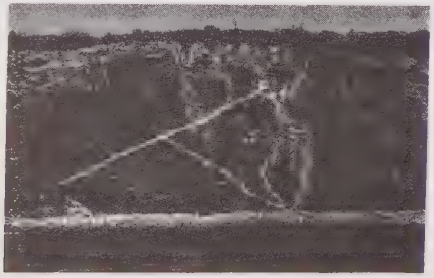
The proposed coastal bluff trail in the City of Rancho Palos Verdes is of such regional significance that much study and care in design will be necessary to ensure that it functions correctly and, at the same time, works within the eco-limits of the fragile coastal environment of which it is a part. It is with this in mind that it is reiterated that more study is necessary before the development of a final walkways plan. The approximate alignment should be within the coastal bluff setback (wherever possible), but at a sufficient distance from the bluff edge to ensure safety for its users. Due to environmental and urban conditions, the coastal bluff trail will sometimes merge with urban trail segments along Palos Verdes Drive West and South; however, this merging is not expected to result in a change to the overall functioning of either. The merging may, in fact, enhance both functions. The trail could have nodes at which varied functions may take place, such as beach access, rest areas (restrooms and limited picnicing), and vistas. The following alignments are recommended as approximate bluff trails:

- From a place near Sandy Point, the trail moves southward along the bluff to a proposed County Park at Point Vicente, where it merges with the Palos Verdes Drive West urban trail. Potential beach access points exist at several locations along this segment.

- Immediately east of Marineland, the bluff trail continues south of the perimeter of a proposed school, along the bluff, through a residential neighborhood, and back to the bluff to Portuguese Point, where it again merges with the Palos Verdes Drive urban trail. Beach access trails exist in about five locations along this bluff segment, two of which are at the County facility at Abalone Cove.

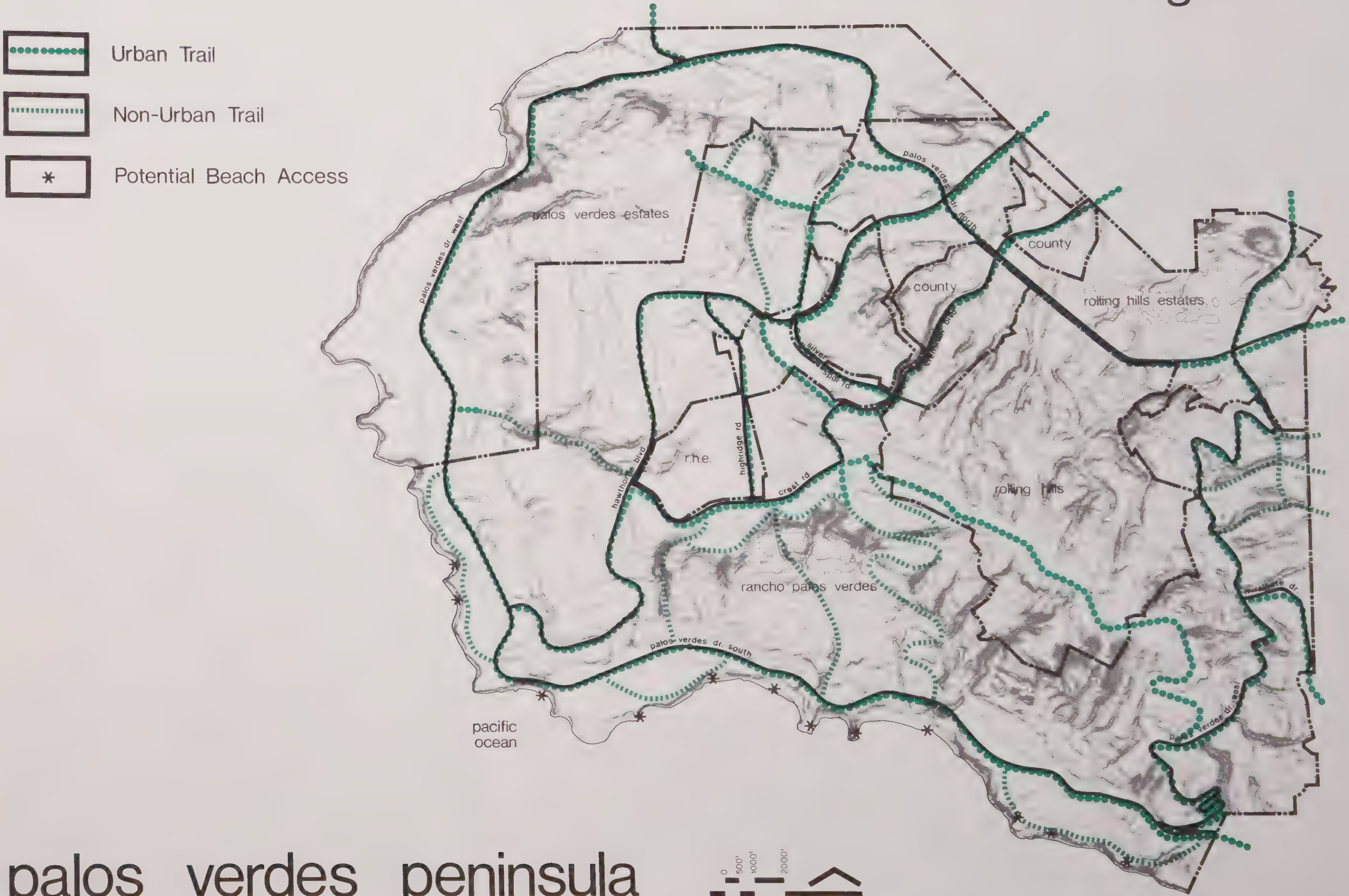
- Although the trail segment from Portuguese Point to just past Schooner Drive is considered an urban trail, the surrounding characteristics create a more rural or natural feeling; therefore, treatment should reflect this. The major beach access occurs at Portuguese Bend Club.

- From a point east of Schooner Drive, the trail continues its bluff alignment to Shoreline Park, where it again merges with an urban trail. Several beach access trails are found along this bluff segment.



conceptual walkways network

figure 21



palos verdes peninsula

Within the City of Rancho Palos Verdes there are certain undeveloped arroyos, slopes, and ridgelines which, due to physical and socio-economic constraints, are not suitable for development. Likewise, there are partially developed areas which, due to similar constraints, are not suitable for further development. These areas make up the principal location of several designated non-urban trails. The term "designated" is used because many existing trails have been established, and while some function well, others are not suitable for use, due to damage to the environment and extreme grade. Further study is necessary on a site specific basis in order for the establishment of quality non-urban trail system. The following areas are suggested as possible trail segments:

- One of the most important and easily implemented non-urban trail segments is the route known as the Crenshaw right-of-way. This trail would extend from a point near the termination of Crenshaw Blvd. to Palos Verdes Drive South. Although the trail runs through the active slide area, it is felt that the area could support an activity such as hiking and nature walks.

- Aqua Armaga Canyon offers excellent potential for a trail. Designated in an extreme physical constraint rating, this Canyon provides potential hikers and nature lovers with a natural linkage from Hawthorne Blvd. into Palos Verdes Estates. (Efforts to coordinate with Palos Verdes Estates in the extension of this trail to Lunada Bay should be made.)

- Similar to Aqua Armaga Canyon, Malaga Canyon is an area of potential trail development. The development of a trail segment from Highland Park around the ridge, and up Malaga Canyon to Grayslake Road (or Basswood Avenue) should be studied.

- In the Miraleste area, several canyons and street right-of-way (proposed Narbonne Avenue) should be investigated for trail potential. The most desirable canyons appear to be Miraleste Canyon, San Pedro Canyon, Averill Canyon, and an unnamed canyon in the southeast portion of Rancho Palos Verdes which just touches Friendship Park. Portions of Miraleste Canyon and San Pedro Canyon lie within the Miraleste Park and Recreation District.

- The Ridgeline south of Crest Road (and between Crenshaw Blvd. and Hawthorne Blvd.) also offers a non-urban trail segment with superb vistas and access to two potential non-urban trails, Via Altamira Canyon and an unnamed canyon east of Hawthorne Blvd., both of which extend to the Palos Verdes Drive South urban trail.

- Study should also be given to a potential loop trail around the Del Cerro development. The loop would include part of the Crenshaw trail; however, at the point where it begins to curve down the hill, the loop might separate and continue around the residential area (on a private easement), to a point of existing Crenshaw Blvd.

Equestrian Trails

Since the time of the earliest settlers, the horse has been a part of life on the Palos Verdes Peninsula. First used primarily for utilitarian purposes, such as basic transportation and aiding in farm activities, the function of the horse is now almost entirely recreational. With the change of functions have come changes in development pressures and public attitudes toward horses. Development pressures have taken significant amounts of land from the rural and semi-rural categories, which can best support equestrian activities, and attitudes now demand that equestrian activities may only take place in certain locations. This section of the path and trail networks Plan offers a guide from which a more detailed equestrian trails plan can be developed. Due to the extensive equestrian trail systems found in adjacent cities, any such detailed planning effort should be coordinated to the fullest extent with those cities, particularly in respect to the logistics required to establish ties with private trails.

conceptual equestrian network

figure 22

rancho palos verdes

Within Rancho Palos Verdes, two general locations now support major concentrations of horses and limited equestrian trails. They are: the East Side and the Portuguese Bend area. The proposed equestrian trails network is designed to provide a designated trail between these two areas, as well as to establish linkages to the extensive trail systems found in adjacent cities. Furthermore, the Plan proposes the establishment of two stable facilities within Rancho Palos Verdes.

The Rancho Palos Verdes equestrian trails network proposed is a web of looping trails in the proposed low density residential and open space areas in the southern and eastern sections of the City.

In the area generally known as Portuguese Bend (bounded roughly by Hawthorne Blvd., Crest Road, Palos Verdes Drive South, and the Crenshaw right-of-way), the amount and type of land uses proposed offer excellent potential for a system of equestrian trails and a stable facility. The exact alignment of trails will be determined through specific planning; however, in most cases, the routes could parallel proposed non-urban hiking trails and should make use of existing trails if determined feasible. The following alignments are suggested for this general route:

- The Crenshaw right-of-way, from Palos Verdes Drive South to the point near its termination
- On the ridgeline south of Crest Road
- North/south trails between the ridgeline and Palos Verdes Drive South as physical terrain and other considerations

In addition to the trail system in this area, it is recommended that, due to the semi-rural character expected and assumed popularity of equestrian activities, an additional stable be established. Further study will reveal the necessary implementation techniques to establish such a stable.

The east side of the City, generally bounded by Rolling Hills, Rolling Hills Estates, San Pedro, and Palos Verdes Drive South, currently has an intricate network of trails which traverse public and private property. In addition to the approximate alignments recommended below, study should be undertaken to determine which of these trails should be designated equestrian trails.

- The Narbonne Avenue right-of-way, for its entire length in Rancho Palos Verdes
- Various canyons under public ownership (e.g., Miraleste Parks and Recreation District)
- Palos Verdes Drive East from Palos Verdes Drive South to Rancho Palos Verdes boundary (the establishment of designated equestrian trail along this route has been suggested as a key link; however, due to the obvious traffic hazards involved, extensive study must be completed before final designation.)

The canyon area (Georgeff Canyon) northwest of the Surrey Development is also recommended as a potential riding and/or stable area, as is a site in or adjacent to Friendship Park.

A coastal bluff equestrian trail system is highly encouraged. It could function as a link between Palos Verdes Estates, Portuguese Bend, and the East Side. Further study is indicated, however, due to the right-of-way problems found in the area between the existing fire station at Sea Cove Drive and Point Vicente.

The following design criteria are suggested as basic concepts:

- Trails should be off-road wherever possible
- Trails should be constructed on loose dirt and appropriate mulch materials (natural) to minimize dust
- Coordinated graphics denoting direction, use, warnings, etc.
- Trails should be fenced (e.g., split rails or similar)
- The regulations and use policies should be generated by cities, appropriate agencies, and equestrian clubs.
- Whenever possible, trails should be continuous and provide access to stable and other riding facilities.

Transportation Systems Policies

It is the policy of the City to:

1 — Design public access into residential areas to control non-local traffic.

2 — Require any new developments with new streets to provide adequate right-of-way widths for possible future needs to provide for traffic patterns necessary to accommodate future growth needs.

3 — Prohibit future residential developments from providing direct access (driveways) from individual units to arterials.

4 — Encourage, together with other Peninsula cities, Southern California Rapid Transit District to improve public transportation on the Peninsula and to provide access to other destinations in the region.

5 — Explore the establishment of an independent bus system or contract for service with an independent municipal transportation agency, if RTD service remains unsatisfactory.

6 — Design path and trail networks to reflect both a local and regional demand, while maintaining the unique character of the Peninsula.

7 — Require, wherever practical, all path and trail networks to be in separate rights-of-way.

8 — Coordinate and cooperate with adjacent cities, the County and other appropriate agencies and organizations in the development of path and trail networks is encouraged.

9 — Prohibit motorized vehicles from using designated paths and trails, except in the case of emergency or maintenance vehicles.

10 — Require that all new developments establish walkway, bikeway and equestrian systems, where appropriate.

11 — Further investigate possible funding sources for acquisition, development and maintenance of paths and trails.

12 — Make use, where appropriate, of existing rights-of-way and easements.

13 — Provide safety measures on paths and trails, particularly on bluffs and ridgelines, and include such measures as key design factors.

14 — Encourage the R.T.D. to provide bike-racks (or similar) on buses.

15 — Encourage the establishment of a program designed to educate users and non-users of path and trail networks in terms of safety and courtesy.

16 — Insure public access to the Rancho Palos Verdes shoreline.

17 — Explore alternative methods of implementation for the stables proposed in this Plan.

18 — Require adequate off-street parking for all existing and future development.

19 — Investigate current and future parking characteristics and develop appropriate ordinances which regulate overnight street parking, parking of recreational vehicles, etc.

20 — Require, wherever possible, pedestrian access in new developments for children to schools.

21 — Require detailed analysis for all proposals to convert local public roads into private streets or retain new local roads as private property. Conditions for establishing private streets should include: (a) The road is a truly local road and is not needed as a thoroughfare in the collector and arterial road network, (b) An assessment district or a C.C. & R. district is established which will allow the district to levy taxes or legally enforceable assessments for road maintenance, (c) Provisions are made to guarantee the proper up-keep of the streets, (d) Dedication of non-vehicular easements may be required.

Infrastructure Policies

It is the policy of the City to:

1 — Explore the possibility of eliminating major or critical infrastructure facilities and networks which serve other parts of the City from landslide areas.

2 — Prohibit the extension of any infrastructural component into any area known to be unstable or of major environmental significance.

3 — Consider, at such time that a service or services do not adequately meet the needs of Rancho Palos Verdes, which utilities might better be a function of the City or other public agency.

4 — Underground all new power lines and communications cables and implement programs to place existing lines and cables underground.

5 — Continue to encourage the establishment of undergrounding assessment districts by homeowners, in areas of existing overhead lines.

6 — Investigate funding sources to be used in local undergrounding programs for areas of existing overhead lines.

7 — Allow new development to only occur where adequate infrastructure systems reasonably can be provided.

8 — Require adequate landscaping or buffering techniques for all new and existing facilities and networks, in order to reduce the visual impact of many infrastructure facilities and networks.

safety

IT SHALL BE A GOAL OF THE CITY TO PROVIDE FOR THE PROTECTION OF LIFE AND PROPERTY FROM BOTH NATURAL AND MAN-MADE HAZARDS WITHIN THE COMMUNITY.

IT SHALL BE A GOAL OF THE CITY TO PROVIDE FOR THE PROTECTION OF THE PUBLIC THROUGH EFFECTIVE LAW ENFORCEMENT AND FIRE PROTECTION PROGRAMS.

IT SHALL BE A GOAL OF THE CITY TO DEVELOP AND ENFORCE HEALTH AND SANITATION, EMERGENCY COMMUNICATIONS, AND DISASTER PREPAREDNESS PROGRAMS TO ENSURE THE OVERALL HEALTH AND SAFETY OF ALL RESIDENTS.

IT SHALL BE A GOAL OF THE CITY TO PROTECT LIFE AND PROPERTY AND REDUCE ADVERSE ECONOMIC, ENVIRONMENTAL, AND SOCIAL IMPACTS RESULTING FROM ANY GEOLOGIC ACTIVITY.

Hazards Inventory

This section identifies and discusses potential safety hazards within the City of Rancho Palos Verdes. Much of the information used was developed in a study prepared jointly for the cities of Rancho Palos Verdes, Rolling Hills, and Rolling Hills Estates by ENVICOM, entitled Technical Data Base for Seismic Safety and Public Safety General Plan Elements (1975). More detailed information regarding fire, flood, seismic, and geologic hazards is contained in this report, which is a part of the Appendix of this Plan and is on file in the City offices.

This section of the General Plan is a combination of two State mandated components: seismic safety and public safety. It provides for the identification of potential hazards and evaluation of existing safety programs. Furthermore, it makes recommendations for the improvement or establishment of safety programs in order to reduce injury, death, loss of property, and other socio-economic impacts resulting from natural and man-caused hazards.

The factors discussed in this section have been, to some degree, vital in the development of the Plan. The further intent of this section is that it will act as a comprehensive framework for future decisions.

Fire Hazard

Located on the Palos Verdes Peninsula, Rancho Palos Verdes contains a variety of land uses ranging from high density apartment and condominium developments to very low density hillside units. This varied landscape involves the role of fire as both a natural process and a hazard.

Fires in undeveloped areas result from the ignition of accumulated brush and woody materials, and are appropriately termed "wildland fires." Such fires can burn large areas and cause a great deal of damage to both structures and valuable watershed. Since wildland fire hazard is an areal concern, it is mappable, and the fire hazards delineated on the "Fire Hazards Map" (ENVICOM), Figure 23, are concerned with this type of fire.

Urban fires usually result from sources within the structures themselves. Smoking in bed, faulty wiring, children playing with matches, and appliance malfunctions are often causes for structural fire. Fire hazards of this type are related to specific sites and structures, and do not lend themselves to an area-based fire hazard zoning.

Wildland Fires

The Palos Verdes Peninsula is a folded, uplifted block of sedimentary and metamorphic material located adjacent to the Pacific Ocean. The marine influence along with the local geology have played significant roles in shaping the terrestrial ecology and fire hazards potential of the Peninsula. Two geological factors important in this discussion include (1) the makeup of the local soils and (2) the topography of the Peninsula.

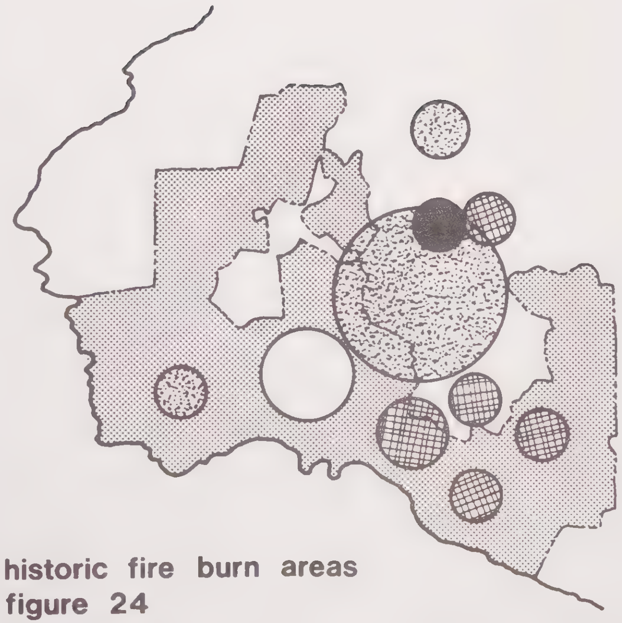
The soils encountered in the Peninsula have been derived from the parent metamorphic and sedimentary materials. Soils of this type are usually very clayey and not particularly conducive to the establishment of well-developed plant communities. This, in part, explains the absence of dense, heavy strands of native vegetation encountered in other areas.

The local topography can best be described as being dominated by hillsides and canyons. This ecological condition adds to the hazards potential, as will be discussed later.

Development in some localities has extended into the canyons of the study area and has reduced the fire hazard by removing the vegetation. However, it has also introduced the human element into more outlying locations, thus increasing the hazard. In some cases, these divergent relationships have reduced the possibility of wildland fire; but in most, they have enhanced the hazard of fire.

Fire records maintained by the Los Angeles County Fire Department between the years 1919 and 1973 indicate that large portions of the study area have been subject to wildland fires of 100 acres or larger. Figure 24 illustrates these locations; but more importantly, it demonstrates the lack of fire recurrence in the Palos Verdes area. This evidence indicates the study area is relatively free from recurring fire problems of major significance. Fire records do not account for fires smaller than 100 acres in size, which can also cause much damage when they occur adjacent to residences.

Several factors affect the hazard potential one can expect from a wildland fire in any given area. These factors include human proximity, vegetation, wind direction, slope, and access to the area.

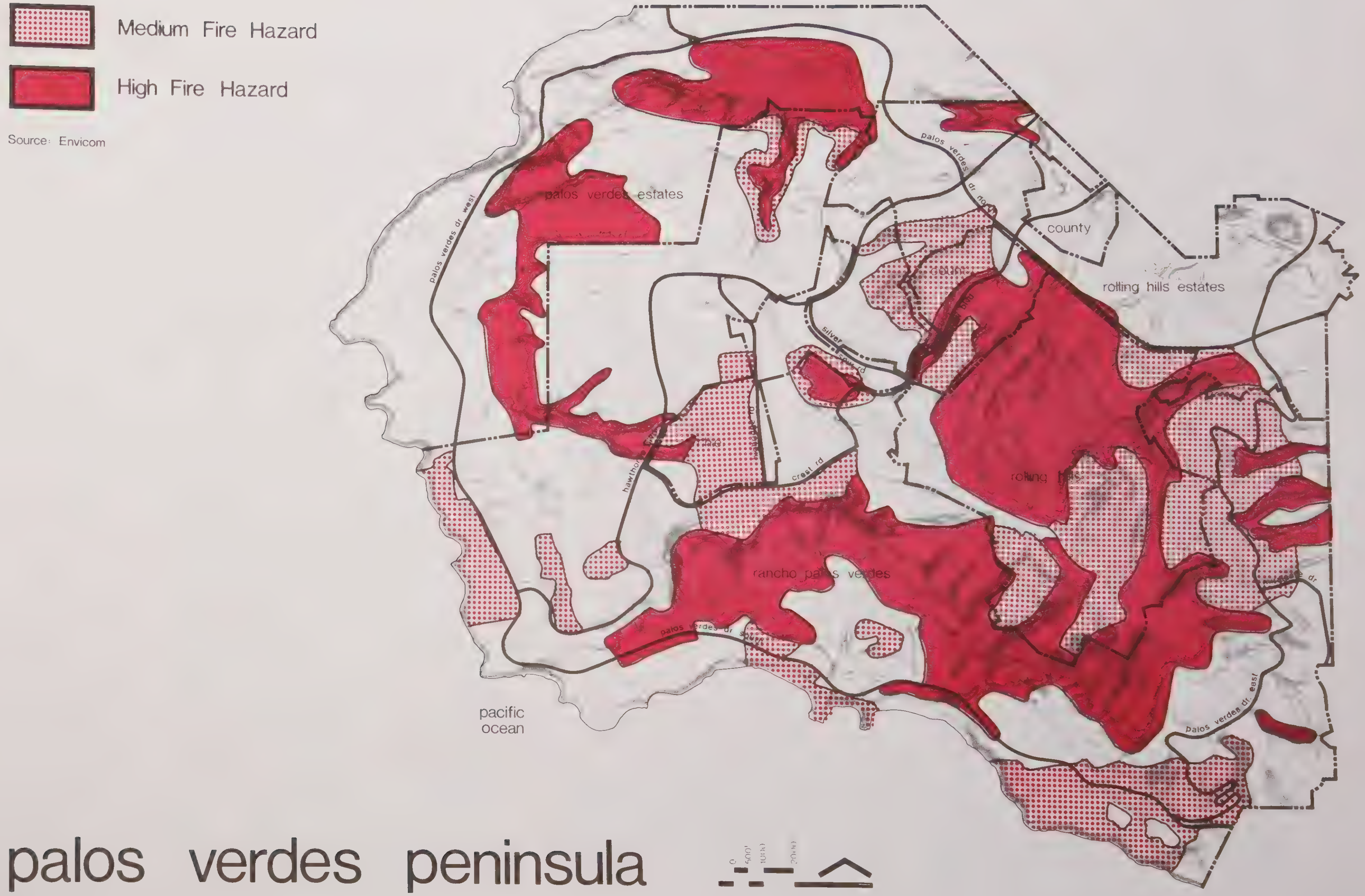


historic fire burn areas
figure 24

Source: Los Angeles County Fire Dept.

fire hazards

figure 23



palos verdes peninsula

The most significant factor determining overall fire risk is human proximity. The human element is often essential in the ignition of major brush fires, as evidenced by the abundance and frequency of burns in the vicinity of residential neighborhoods. The most important contributor to this factor of fire hazard appears to be the unsupervised activities of children playing with matches or lighters. Cinders from wood-burning fireplaces that remain alive and travel considerable distances have also been blamed for fire-starts near residential locations; but fully 90% of the local fires in Palos Verdes have resulted from human activities near the interface of wildland areas and urban locations.

Human proximity also tends to increase the activity of off-road vehicles, such as motorcycles and minibikes, into nearby open areas. This activity is becoming an ever-increasing source of brush-fires, as the trend accelerates toward such recreational pursuits.

Accidents related to industrial activities, such as spark discharges from transmission lines and flammable leakages from pipelines in and adjacent to brush-covered areas, serve to increase the potential for fire.

The density and distribution of vegetation profile can define both the overall hazard of fire in a particular area and the intensity of fire which ensues. The vegetation of an area determines the fuel and spreading potential and can decide the recurrence intervals one can anticipate between outbreaks of fire. In the Palos Verdes area, four major plant

communities determine the various fuel potentials of the area:

— Chamise Chaparral

— Coastal Chaparral

— Coastal Sage Scrub

— Woodland-grass Type

Wind direction and strength rivals human proximity and vegetation as being the most significant factor affecting fire hazard. Although the study area has a predominant westerly breeze flow, the bulk of the local fire outbreaks tend to accompany the warm, dry easterly wind conditions commonly termed "Santa Anas." Therefore, those areas that lie to the west of potential ignition points or fire sources become even more hazardous. The Santa Ana wind system occurs in the fall season, and, for residents of Southern California, the season of the Santa Ana is synonymous with fire danger.

The fourth major factor is slope. In this usage, slope relates to the presence of steep canyons and hillsides which characteristically demonstrate propensities for fire. Local topography can funnel winds and create significant drafts that greatly add to the uncontrollability of wildfire. Entire canyons have literally exploded into flame from the superheated condition resulting from the combination of fire and wind drafts.

Access is the factor that describes the relative difficulty of delivering both equipment and personnel to a fire. Containment being a key objective, those areas of limited accessibility have a correspondingly greater potential for fire-spreading than those more accessible locations.

In the Palos Verdes area, the factor controlling access is slope. The amount of slope in a fire burn area can determine the type of heavy equipment and strategy that can be used. The Los Angeles County Fire Department has developed the following basic slope classifications as they relate to accessibility:

Extreme	=	40+%
High	=	20 – 40%
Medium	=	10 – 20%
Low	=	0 – 10%

The fire risk zones shown on the Fire Hazards Map represent a compilation of data regarding the primary factors of human proximity, vegetation, wind direction, slope, and access. These factors are ranked in importance in roughly the same order as presented. However, fire risk analysis treats each factor as a mutually exclusive variable. Human proximity might be "more important" than slope on a general level, but conditions exist where the degree of slope could become the predominant factor in the risk determination process. Therefore, each factor can vary in relative importance, depending upon the specific conditions and characteristics of the area. The following area profiles exemplify the types of conditions expected to be found in each zone.

High Risk

Vegetation:	Chamise-coastal chaparral-woodland
Proximity:	Near developed area
Access:	Limited
Slope:	20 – 40%

Medium Risk

Vegetation:	Coast sage scrub
Proximity:	Lying within the urbanized portions of the study area
Access:	Available
Slope:	0 – 20%

Low Risk

Vegetation:	Vacant lots and landscaping
Proximity:	Urban areas
Access:	Available
Slope:	Negligible

The fire risk zones portrayed on the Fire Hazards Map represent a general assimilation of the data categories being considered. They are not meant to be precise or specific alignments, but instead tools that delineate fire propensities.

Urban site conditions are too detailed to be considered or shown at the scale of the maps used in this study. Therefore, certain areas within the "low hazard" zone may be highly hazardous, and care should be exercised to avoid fire. Conversely, site conditions in areas within high fire "hazard" zones might preclude the possibility of fire, thus pre-empting the need for more stringent fire controls. In both cases, strict attention must be paid to both on-site and adjacent conditions.

Urban Fires

Fire has long been recognized as an especially dangerous threat in urban areas. As the population concentrates in increasingly built-up areas, the factors necessary for fire ignition increase, as do the chances of a fire spreading rapidly once it starts. These same factors of population, materials; and energy concentrations in cities mean that loss of life, injury, and property damage from fire are greater in urban areas as well.

The City of Rancho Palos Verdes is located on the western edge of the largest urban complex on the West Coast. While the hazards here are not as great as those in older cities, the area does have a propensity for major fires, especially during its long, hot summers. On the other hand, several assets tend to minimize the potential number and degree of damage of these fires. The low density of the built-up areas, the quality of fire control agencies, and high standards of fire prevention all contribute to making the area safer.

Buildings having open stairwells, substandard electrical wiring, or faulty heating systems are considered to be hazardous. Upon ignition, the fire spreads rapidly through the building. A common example of a fire hazardous building are older, multi-storied structures. There are, however, no major clusters of this kind of building in Rancho Palos Verdes.

Single-family detached houses form the major portion of the housing stock in the area. Fires occur more frequently in private homes for a variety of causes, with human carelessness chief among them. More lives are lost in residential fires than in any other type of fire. One particularly dangerous hazard in residential fires is the use of untreated wood shingles in roof construction. Windy conditions could spread the fire to a large number of other houses where this type of roof is common. Another concern to fire fighters has been identified as the response time to certain residential areas within the City. This is particularly true in neighborhoods with long cul-de-sacs (in excess of 700 ft.) and in areas with limited ingress/egress points (Schneider).

Buildings over five stories pose difficult fire control problems. The large number of occupants and their dependence on internal support systems, such as water pressure systems, ventilation systems, and elevator systems, increase the potential for disaster. Adequate response to high-rise fires requires special equipment, such as helicopters and aerial ladders.

Public assembly facilities are defined as those in which large numbers of people congregate in generally unfamiliar surroundings. They include schools, theaters, churches, temples, and a variety of recreational facilities. There are a number of these buildings in the study area, including several schools. Gatherings of large numbers of people in these buildings create conditions conducive to mass panic in a crisis, which only worsens and increases the casualties. Administering medical aid is made more difficult in these situations as well.

Potentially hazardous industrial operations encountered in the Rancho Palos Verdes area include utility lines, such as gas lines and overhead electrical power lines. While the normal construction of utility lines provides a good degree of safety, gas lines do break, and power lines do come down, and may cause fires. They should not be overlooked as fire hazards. This is particularly true in the Portuguese Bend slide area.

Secondary Effects

A result of both wildland fire and urban fires (adjacent to canyons) is the partial or total depletion of a much needed vegetation, which, in turn, results in a potential erosion (mudflow) hazard. Furthermore, in areas of chaparral, a chemical condition known as the hydrophobic effect causes soil to become relatively impermeable to water, and thereby reduces corrosion. However, ". . . if a slope is burned over by fire of intense heat, the near surface zone is purged of hydrophobic compounds. The vaporized compounds condense in a cooler zone just below the surface. Rainfall could then penetrate the surface layer and reduce its shear strength. Any excess water would migrate downslope, just above the impervious layer carrying away the weakened material as a mud-flow." (California Geology, June,1973, p. 134). See the Flood Hazard section for further discussion.

Flood Hazard

In general, three separate and distinct types of inundation flood hazards are known to exist. Flood inundation hazards are those associated with major atmospheric events that result in the inundation of developed areas, due to overflows of nearby streamcourses or inadequacies in local storm drain facilities. Dam inundation hazards are those associated with the downstream inundation that would occur given a major structural failure in a nearby impoundment. Such failures would most likely be caused by geologic phenomena including seismic events and slope stability problems. Another inundation hazard relative to Palos Verdes is mud and debris flows that can occur during the rainy season.

Natural Flooding

The location of the Palos Verdes Peninsula helps insulate the City from most aspects of flood hazard. The City is not located near any major streamway, and large scale inundations related to over-flow are not expected to occur. However, a definite flooding problem does exist in the form of temporary flash floods related to heavy winter rains. Most of this flash flood activity is isolated along the canyons, the floors of which provide the runoff channels for the hilly, steep terrain. The amount of runoff during a storm is increased by the high runoff characteristic of the local soils. Most flash flood conditions in Palos Verdes are short-lived in nature, due to the limited size of the

available watershed, and the damage resulting from flash floods is more erosive than inundative in nature. However, substantial damage can occur if developments encroach into the canyon bottoms.

The Flood Hazards Map (Figure 25) has delineated the major drainage tributaries that exist in the Rancho Palos Verdes area. These canyon bottoms are potential flood hazards, given a heavy rainfall episode.

Certain canyons within the City are more "flood prone." These are: Aqua Armaga, Altamira, and Georgeffe Canyons. Flood control facilities have been considered for these canyon locations; however, both the economic and environmental expenses involved for protective measures must be justified. (See Flood Control section of Infrastructure)

Storm drain facilities constructed in the higher density areas of the Peninsula provide adequate protection against flash flooding. Standing water problems in the urban areas are not common; however, the area has not yet been systematically studied by the U.S. Department of Housing and Urban Development Flood Insurance Study program. Such an investigation, when completed, might show the existence of potential flood zones resulting from standing water.

Mud and Debris Flow

Mud and debris flows are potentially serious hazards to life and property in the hilly portions of the Palos Verdes Peninsula. They involve very rapid downslope movement of saturated soil, sub-soil, and weathered bedrock. They originate in hillside areas where the soil horizon is well-developed, but the soil has poor drainage characteristics. Large mudflows may have the energy to uproot trees and to carry along boulders several feet in diameter.

Because of the speed with which they move, mudflows can be quite destructive, especially along the bottom and at the mouths of canyons.

Mud and debris flows are most likely to occur after a fire. The removal of vegetation by fire lowers the stability of exposed soils and lessens the water-holding capability of the local watershed. Heavy rains can transport unstable mud and debris, thus creating a potentially substantial safety hazard.

Efforts to control flooding do not mitigate potential mudflow hazards. The most effective control methods lie in coordinated efforts involving more effective land use considerations and fire prevention.

Water Storage Facility Failure

The largest water impoundment encountered in the study area is Palos Verdes Reservoir, owned by the Metropolitan Water District and located near Palos Verdes Drive North in the City of Rolling Hills Estates. Palos Verdes Reservoir is an earth-fill type facility that has a surface area of 27 acres, and a maximum storage capacity of 1100 acre-feet. This compacted-fill dam was constructed in 1939 to the engineering specifications of the period. The relative effects of earthquake shaking on the dam have not been determined. The damage which might take place due to major structural failure would probably occur in the San Pedro area to the east.

Thirteen other water impoundments of smaller size are located throughout the Peninsula the locations of which appear on the Flood Hazards Map. These facilities are either above- or below-ground water tanks of lesser capacity than Palos Verdes Reservoir. Although such facilities are smaller in capacity than Palos Verdes Reservoir, they could present locally hazardous inundation situations if they were to fail.

Hazardous geologic phenomena, particularly landsliding, is most likely to be the caustive agent behind the structural failures of water impoundments that may occur in the Palos Verdes area. The following table describes the locations of the various facilities as to seismic zones and landslide hazards to which they are exposed.

Facility	Seismic Zone	Landslide Hazard
No. 1	1M	Immediately adjacent to a possible landslide
No. 2	2M	Located on a possible landslide
No. 3	2M	Immediately adjacent to an active landslide
No. 4	2M	No adjacent landslide activity
No. 5	2M	No adjacent landslide activity
No. 6	2M	No adjacent landslide activity
No. 7	3M	Located on an active landslide
No. 8	3M	No adjacent landslide activity
No. 9	3M	Immediately adjacent to old landslide
No. 10	2M	No adjacent landslide activity
No. 11	2M	No adjacent landslide activity
No. 12	2M	Immediately adjacent to old landslide
No. 13	2M	No adjacent landslide activity
No. 14	2M	Immediately adjacent to old landslide

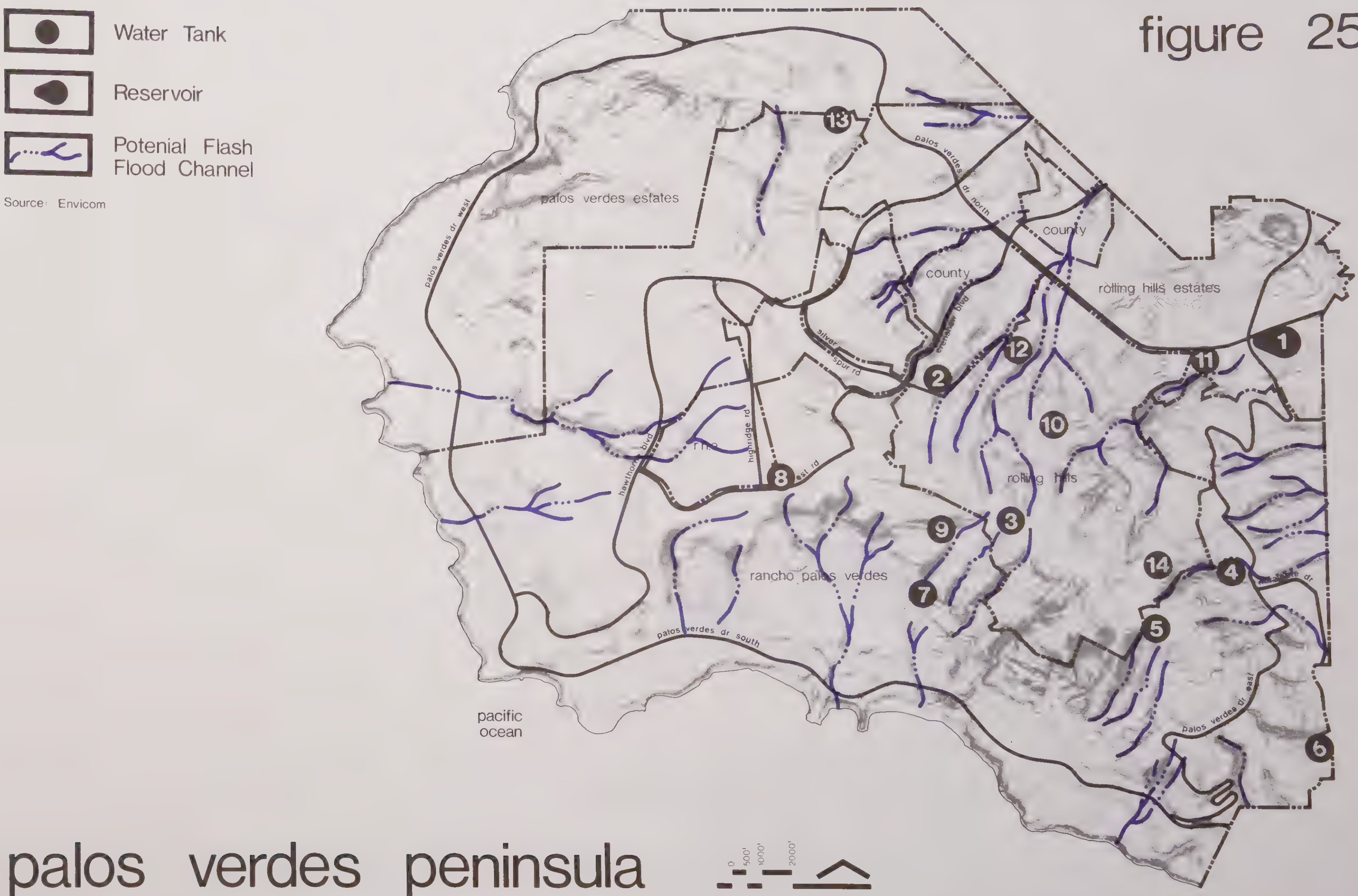
Each of the water storage facilities will be subject to severe groundshaking given a major seismic event on either the San Andreas or Newport-Inglewood fault. The ability of the water storage facilities to withstand the anticipated groundshaking is not known and deserves further investigation by certified structural engineering personnel.

Seven water storage facilities could be adversely impacted by landsliding activity. They are located on, or very near, active or probable landslides throughout the Palos Verdes area. Water storage facilities found to be subject to further landsliding are quite hazardous and deserve on-site investigation by a qualified engineering geologist.

In general, the direct threat to public safety resulting from inundation will not be great, with the possible exception of Palos Verdes Reservoir. However, other results indirectly related to inundation could be quite severe, including the shortage of water for both domestic and fire prevention uses. Shortages of that nature could be extremely critical in a real disaster situation.

potential flood and inundation hazards

figure 25



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Geologic Hazard

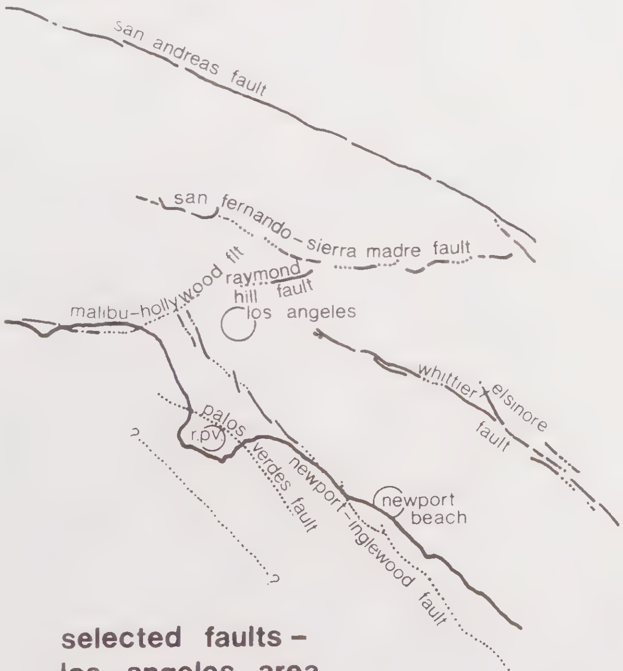
The Palos Verdes Peninsula is composed of a sequence of sedimentary and metamorphic rock which has been folded and uplifted along the Palos Verdes fault on the north and an unnamed fault in the offshore area to the south. (See Natural Environment for geologic profile of Palos Verdes Peninsula.) The folding and up-lifting of the Peninsula has produced an anticlinal structure in which the sedimentary rocks are inclined generally to the north on the northerly flanks of the Palos Verdes Hills and inclined to the south on the southerly side. This particular structural relationship is one of the major factors responsible for the large-scale landslides present on the Peninsula.

Four basic geologic formations are present on the Peninsula. The four rock types are: Catalina Schist, Monterey Formation, instrusive volcanics, and terrace deposits. (See Natural Environment Element and/or the Technical Data Base for Seismic Safety and Public Safety General Plan Elements, Envicom, for detailed information.)

Two faults are present on the Peninsula: the Cabrillo fault and the Palos Verdes fault. The Cabrillo fault traverses northwesterly from the southeastern corner of the area to near the center of the Peninsula (see General Geology Map Figure 26). The Palos Verdes fault traverses the northeastern corner of the study area. Neither fault is considered the source of significant earthquakes for reasons discussed in detail under Seismic Hazards.

Seismic Hazard

The City of Rancho Palos Verdes is located in a seismically active area and in relatively close proximity to several of the many active and potentially active faults in Southern California (see Figure 27). This section analyzes the earthquakes that should be expected in the future and the effects that will be experienced with the area.



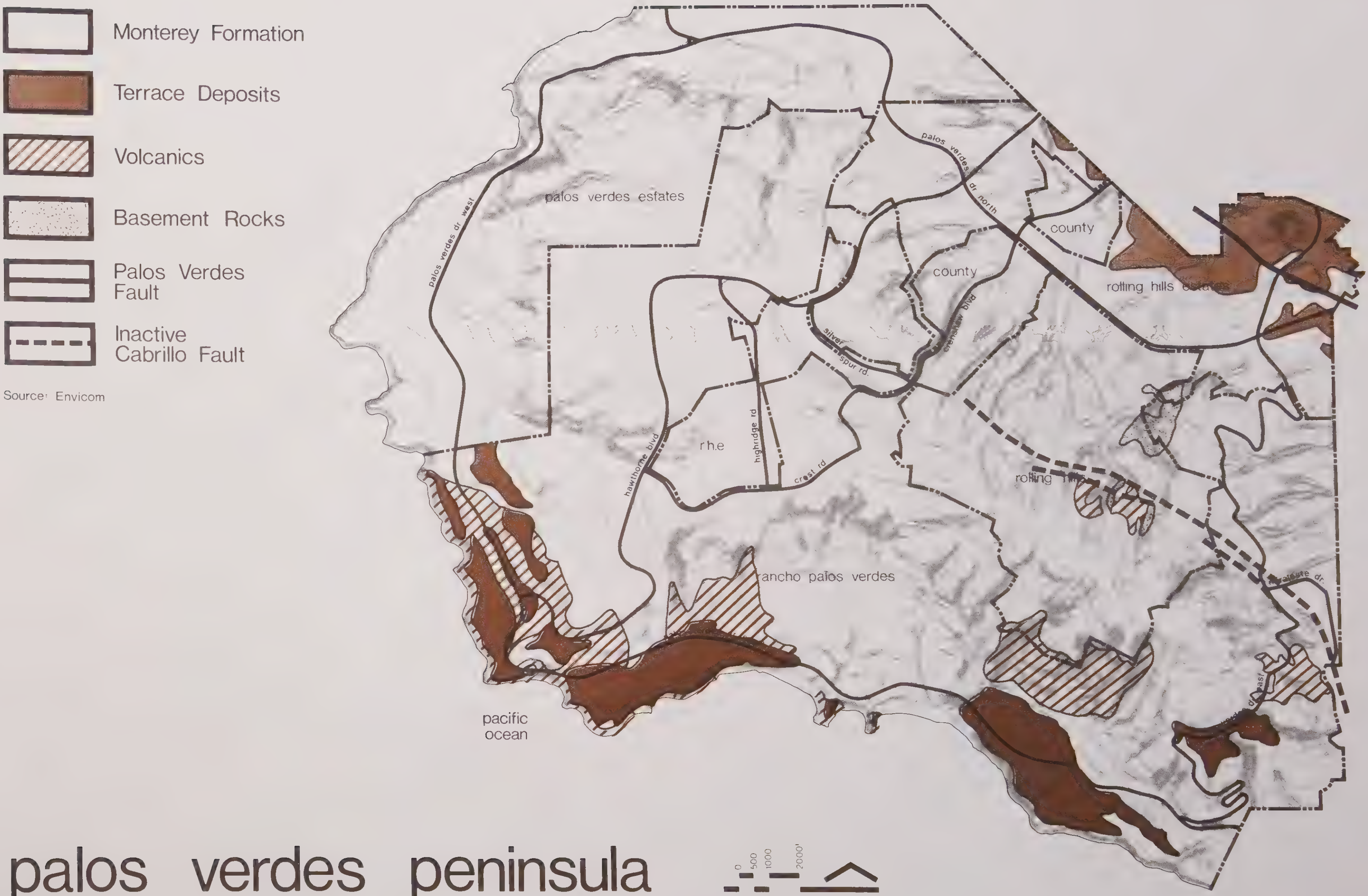
selected faults – los angeles area

figure 27

Source: Greensfelder

general geology

figure 26



palos verdes peninsula

For the purposes of defining the problem, the principal active and potentially active faults in the region, and their earthquake generating capabilities are listed in Table 12. The latter is expressed as the magnitude of the largest earthquake that can reasonably be expected, and also as the level of shaking (ground acceleration) that could result within the City. The approximate probabilities of occurrence that are listed should be considered on a relative scale, with "likely" being a probability of greater than approximately 50 percent, and "low" a probability of less than approximately 15 percent.

Three items in the table are of particular interest. First, earthquakes generated by the Newport-Inglewood fault will result in high ground accelerations because the fault is close to the City. Second, the earthquake on the San Andreas is important because it has a high probability of occurrence, and because it will be one of California's "great earthquakes." Strong shaking from this earthquake is expected to last between 40 and 60 seconds, but the ground accelerations in the area will not be unusually high, because the nearest point on the fault is 53 miles to the northeast. Third, the Palos Verdes fault, which is generally considered as potentially active, is the source for the largest ground accelerations shown on the table. However, for reasons presented later in the report, the probability of occurrence is considered "Very Low."

Significant earthquakes can and probably will occur on other faults. However, available evidence indicates that their effects in the study area will be significantly less than the effects of the Newport-Inglewood, Palos Verdes or San Andreas faults selected for further analysis.

Known active or potentially active faults that could be the site of ground rupture resulting from movement on the fault are limited to the Palos Verdes fault zone which traverses the extreme northeastern corner of the study area (General Geology Map). Evidence bearing on the activity of this fault is discussed in detail in a following section. No other potentially active faults are known within the study area (Greensfelder, 1972 and Ziony, et al., 1974), and there are no significant trends of earthquake epicenters or groundwater conditions indicating a buried active fault within the Cities. Figure 28 presents a plot of all recorded earthquake epicenters in the area from 1932 through 1972.

epicenter locations 1932–1972

figure 28

- $m < 4$
- $4 \leq m < 5$
- $5 \leq m < 6$
- $6 \leq m$

TABLE 12

Summary of Known Active and Potentially Active Faults and
Their Earthquake Generating Capability
Palos Verdes Peninsula

	Distance from Study Area (Miles)	Expected Magnitude (Richter Scale)	Maximum Ground Acceleration* (Gravity)	Approximate Probability of Occurrence (100-Year Period)
Active Faults:				
Newport-Inglewood	7-13	6.0-6.5	0.21-0.38	Intermediate
Whittier-Elsinore	23-28	5.5-6.0	0.05-0.11	Low
Raymond Hill	24-29	5.0-6.5	0.01-0.12	Low
San Fernando-Sierra Madre	30-35	6.0-6.5	0.05-0.1	Intermediate
San Jacinto	52-57	6.0-7.0	0.02-0.03	Likely
San Andreas	53-58	8.0-8.5	0.11-0.13	Likely
Potentially Active Faults:				
Palos Verdes	1-5	5.0-6.0	0.1-0.60	Very Low
Malibu Coast-Hollywood	19-25	5.5-6.5	0.05-0.16	Low

*Schnabel & Seed, 1973.

Source – Envicom

Newport – Inglewood Fault

The earthquakes that have had a significant effect on the study area, in historic times, have originated principally as the result of movement on segments of the nearby Newport-Inglewood fault zone. The most notable are the Long Beach earthquake (March 10, 1933, with a magnitude of 6.3), the Signal Hill earthquake (October 2, 1933, with a magnitude of 5.4), the Gardena earthquake (October 21, 1941, with a magnitude of 5.0), and the Torrance-Gardena earthquake (November 14, 1941, with a magnitude of 5.5). The epicenters of these earthquakes, as well as others along or in the vicinity of the Newport-Inglewood fault, are shown on Figure 28. Records of the smaller earthquakes (generally less than magnitude 3.9) are not available for years prior to 1963, so the number of smaller quakes shown is considerably less than that which would be expected had they been recorded for the full period from 1932 to 1972.

The relative intensity of ground shaking in the vicinity of the study area during each of the four notable earthquakes described above is estimated to have been between IV and VI on the Modified Mercalli Scale (Neamann, 1935 and 1943). The levels of intensities were deduced from the accounts of witnesses and by the severity of damage to different types of construction.

Historical data for the Newport-Inglewood Fault, from 1933-1971, is summarized in the table below.

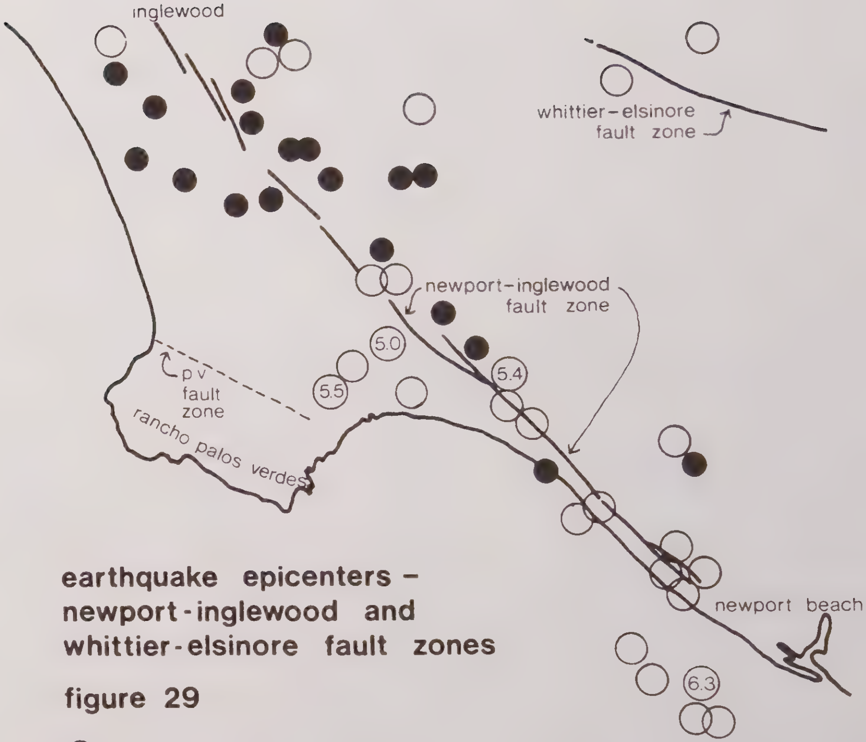
Recurrence of Magnitude
Newport-Inglewood Fault Zone

(1) Magnitude Interval	(2) Number Of Events	(3) Years Recorded	(4) Events per 100 Years	(5) Recurrence Interval (Years)
3.0 - 3.4	15	9	166	0.6
3.5 - 3.9	6	9	66.7	1.5
4.0 - 4.4	15	39	38.5	2.6
4.5 - 4.9	5	39	12.8	7.8
5.0 - 5.4	2	39	5.13	19.5
5.5 - 5.9	1	39	2.57	39.0
6.0 - 6.4	1	39	2.57	39.0

$$\text{Column 4} = \frac{100}{\text{Column 3}} \times \text{Column 2}$$

$$\text{Column 5} = \frac{100}{\text{Column 4}}$$

These values are normalized to a 100-year period and show both as events per 100 years and as a recurrence interval for each range of magnitude. The data are plotted on Figure 29 as heavy dots, and a recurrence rate for the Newport-Inglewood fault zone is interpreted from this data. The alignment of the data points is good with the exception of the point for the magnitude 6.0-6.4. This point is the Long Beach earthquake, and the interpreted rate assumes that an earthquake of this magnitude would still have occurred only once, had the sampling interval been a complete 100-year period. This method has also been used by Allen et al. (1965) in establishing recurrence rates for a number of areas in Southern California. Their rate for the Los Angeles Basin is included on Figure 30 for comparison, and to emphasize the increased seismicity, particularly for larger magnitudes, in the area of the Newport-Inglewood fault zone.

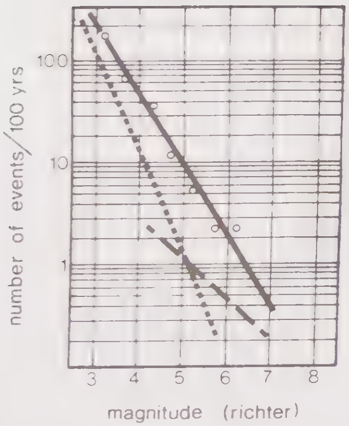


earthquake epicenters – newport - inglewood and whittier - elsinore fault zones

figure 29

● 3.0 3.9
○ 4.0 4.9
(6.3) Magnitude as shown

The discussion above applies to the entire fault zone from Newport Beach to Beverly Hills. The recurrence of damaging earthquakes in the study area will depend not upon the rate for the entire fault zone, but upon the rate for the segment of the zone nearest the City. This rate can be determined approximately by applying relationships between earthquake magnitude and length of fault rupture as determined by Bonilla (1970). The theoretical lengths of rupture are listed in Column 2 of the table below, and the theoretical number of segments for the four arbitrarily chosen magnitudes is listed in Column 3.



recurrence of magnitude of earthquakes recorded on and near the newport–inglewood fault zone

figure 30

—— Newport–Inglewood fault
— — Newport–Inglewood fault (single segment)
...... Average for L.A. basin

Recurrence of Magnitude
Single Segment of
Newport-Inglewood Fault Zone

(1) Magnitude	(2) Theoretical Length of Rupture (miles)	(3) Theoretical Number of Segments (38 mile length)	(4) Recurrence for Entire Fault Zone from Previous Figure (years)	(5) Recurrence for Single Segment (years)
5.0	5	7.1	11.8	84
5.5	7	5.4	26.2	142
6.0	12	3.2	58.8	188
6.5	18	2.1	143.0	300

$$\text{Column 3} = \frac{38}{\text{Column 2}}$$

Column 5 = Column 3 x Column 4

These values, converted to number of events per 100 years, are shown on Figure 30 as the curve annotated "Single segment of Newport-Inglewood fault." This curve represents the "discounting" of the curve for the entire fault zone due to the relationship that smaller earthquakes result from the movement of shorter segments of the fault. The two curves converge at magnitude 7.7, which is the magnitude that would be expected should the entire 38-mile length of the zone move at the same time. Such an event can be considered the "maximum credible" earthquake for the Newport-Inglewood fault zone. Since the recurrence interval for an event of this magnitude is approximately 1,000 years and the southern segment moved only 40 years ago, this potential event is not considered as having a sufficiently high probability of occurrence to be considered in this analysis.

The analysis or recurrence of magnitude for the segment of the Newport-Inglewood fault zone nearest to the study area yields the following results.

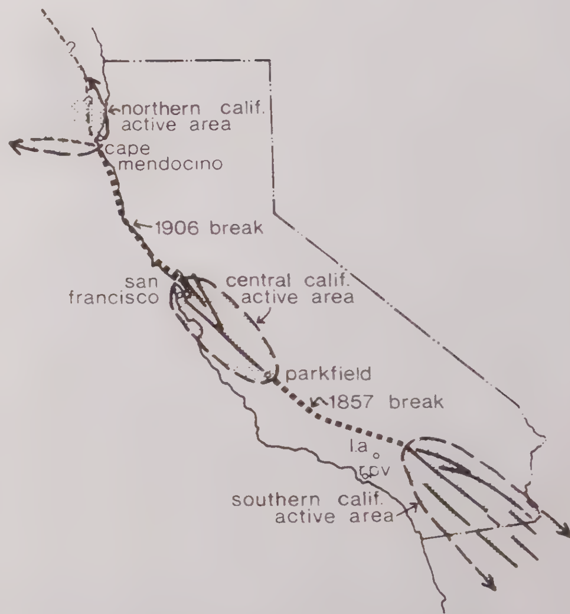
Recurrence Interval	Expected Magnitude
100 years	5.2
150 years	5.6
300 years	6.5

San Andreas Fault

The San Andreas fault has generated two great earthquakes in recorded history; the 1856 Fort Tejon earthquake (magnitude 7.5-8.5), and the 1906 San Francisco earthquake (magnitude 8.3). Ground shaking intensities in the vicinity of this study were not recorded for the 1856 event, but reached a level of III-IV (Mercalli Scale) for the 1906 earthquake (Lawson, 1908).

The analysis of expected events from the San Andreas fault zone must be approached by a method that is very different from that used to analyze the Newport-Inglewood fault zone. This is because the movement of the segments of the fault zone are more complex, and because the data are different.

The San Andreas fault zone has been divided by Allen (1968) into several areas of contrasting behavior (see Figure 31). The area of particular interest is the segment between San Bernardino and Parkfield that generated the Fort Tejon earthquake of 1856. This was the source of one of the three "great earthquakes" in California's historic record, and this segment of the fault has not moved since. It is the closest part of the fault to the study area, and it is generally considered as the segment capable of generating the largest earthquake.



contrasting seismic behavior along the san andreas fault zone

figure 31

Source Allen. 1968

The segments of the fault to the northwest and southeast of the 1856 break are "active areas" that experience earthquakes of medium to small magnitude on a fairly regular basis. The 1856 break, however, is not moving, but is storing energy. The approximate rate of this storage can be deduced from the movement to the northwest which is occurring at a rate of 5-6 cm/yr, while that to the southwest is approximately 8.5 cm/yr. Current theory suggests that the differential between the two rates is being taken up in the Transverse Ranges near the south end of the segment, and that a rate of approximately 5-6 cm/yr is applicable to most of the segment of the 1856 break. This rate is compatible with other considerations (Brune et al., 1969) relating to movement on the fault.

Strain Accumulation and Fault Slip
Central and Southern San Andreas Fault
(From Greensfelder, 1972)

Area and Triangulation Net	Strain Accumulation and Fault Slip
1. Central California Active Area:	
a. San Francisco Bay Area 1906-1969	5–6 cm/yr displacement between Mt. Diablo and San Francisco Peninsula; both strain and fault slip.
b. Salinas River, 1944-1963	3 cm/yr slip on San Andreas fault
2. Area of 1857 Break:	
a. San Luis Obispo to Avenal, 1932-1951	1.5 cm/yr slip and strain
b. Gorman, 1935-1956 Palmdale, 1938-1958; Cajon Pass, 1949-1963; Newport Beach to Riverside, 1929-1953	No significant movement detected.
3. Southern California Active Area:	
a. Imperial Valley, 1941-1967	8.5 cm/yr regional displacement.

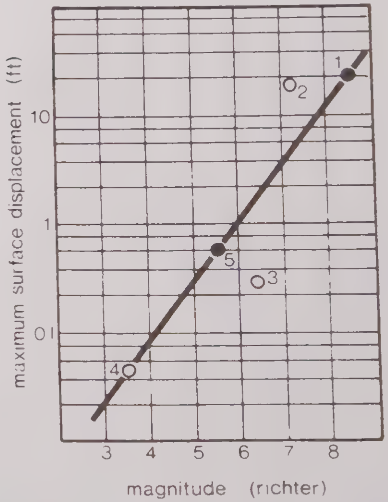
The magnitude of an earthquake generated by slip on a fault is approximately proportional to the logarithm of the movement magnitude compiled by Bonilla (1970) for the San Andreas and other faults of similar characteristics are listed in the table below.

Fault Displacement And Earthquake Magnitude
Lateral Faults In California

	Fault	Year	Fault Displacement (feet)	Earthquake Magnitude (Richter)
1.	San Andreas	1906	20	8.3
2.	Imperial	1940	19	7.1
3.	Manix	1947	0.25	6.4
4.	Imperial	1966	0.05	3.6
5.	San Andreas	1966	0.6	5.5

The most important consideration is that 118 years have passed since this segment last moved. Regardless of the rate of displacement assumed, there is probably enough energy stored in this segment of the San Andreas fault to generate a major earthquake at any time. If a 6 cm/yr rate is valid, the energy stored already is sufficient to generate an earthquake of a magnitude of approximately 8.3. This is the estimated magnitude of the great San Francisco earthquake of 1906.

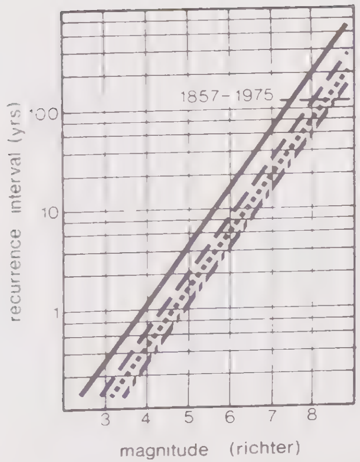
The reasoning developed in the paragraphs above is not new to most geologists, seismologists, and earthquake engineers. It is the reason one hears from time-to-time about the prediction of a "great earthquake" on the San Andreas fault near Los Angeles. From a scientific standpoint, such an earthquake must be considered as imminent. The question is not "if," it is "when," and the longer it waits, the larger it will probably be.



earthquake magnitude/surface displacement for strike–slip faults

figure 32

● San Andreas fault
○ Other lateral faults



recurrence vs. earthquake magnitude for san andreas fault

figure 33

2 cm/yr
4 cm/yr
6 cm/yr
8 cm/yr

Palos Verdes Fault

The Palos Verdes fault zone is a faulting and intense folding 50 - 60 feet wide, or possibly more, in the Miocene-age Monterey Group. The weight of evidence indicates the fault zone is not geologically active and has not been since later Lower Pleistocene (200,000 to 500,000 years ago). However, future geologic investigations of proposed construction sites along the trend of the zone will continue to provide new information bearing on this problem.

The Palos Verdes fault has been assigned a rating of "potentially active," for the purposes of this analysis, since movement has taken place during the Quaternary period of geologic time. However, the probability of a significant seismic event along this fault in the next 100 years is "Very Low," in light of the fact that over 200,000 years have apparently passed since the fault last moved.

Cabrillo Fault

Ziony, et al., (1974), indicate only that the Cabrillo fault has moved within the last 12 million years, but mapping by the California Division of Mines and Geology (1967) shows that the fault has not displaced the terrace deposits of Pleistocene-age (less than 2 million years old). The absolute age of these terrace deposits is difficult to determine, but since they lie at an elevation of 1000 feet above sea level, they are older than the 200,000 to 300,000 year old terrance deposits present at an elevation of 150-200 feet which overlie the Palos Verdes fault at the north edge of the Palos Verdes Hills. Since the Cabrillo fault has shown no evidence of movement since the deposition of the sediments on the terraces, it is at least 300,000 years old and therefore "inactive."

Secondary Geologic Hazards

Landslides

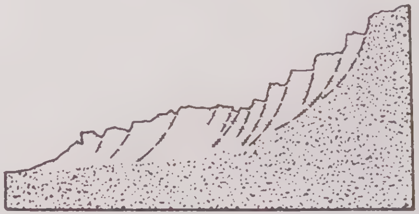
Landslides represent only one step in the continuous, natural erosional process. They demonstrate in a dramatic way the tendency of natural processes to seek a condition of equilibrium, and various erosional processes act to gradually reduce them to a base level. Landsliding is an important agent in this cycle.

Several types of landslides commonly encountered include (see Figures 34, 35, 36 and 37 respectively):

- Block glides – These are the largest, most impressive type of slide. The basal failure plan is controlled by planar zones of weakness, such as bedding planes, joint planes, or formational contracts. Block glides typically occur in layered rocks of sedimentary or metamorphic origin where lateral support is removed by erosion or grading.

block glide landslide
figure 34

- Arcuate failures – Arcuate failures are common in massive, unstructured material with relatively little resistance to shearing. These materials include thick sections of clayey soil and poorly compacted artificial fills. The zone of failure typically describes an arc rather than a plane, and the movement of the mass is partly rotational. Small arcuate failures, called slumps, are common along steep-banked streams, where the stream has cut through an existing soil zone.



arcuate failure or slump
figure 35

- Rockfalls – This phenomenon, much like an avalanche of loose rock, cascades down a steep slope, disturbing more material as it passes, becoming more widespread, until it reaches the bottom of the slope. Rockfalls are prevalent where natural slope gradients exceed 50%, and where natural weathering produces angular fragments of material with little soil cover.

rockfall
figure 36

– Mudflows – Mudflows involve very rapid downslope movement of saturated soil, sub-soil, and weathered bedrock. They originate in hillside areas where the soil horizon is well developed, but the soil has poor drainage characteristics. Large mudflows may have the energy to uproot trees and to carry along boulders several feet in diameter. Because of the speed, with which they move, mudflows can be quite destructive, especially along the bottoms and at the mouths of canyons.

mudflow

figure 37

Landsliding is basically controlled by four factors. The rock type or geologic formation is a reasonably good indicator of the strength of the rock and its resistance to failure. The geologic structure or the orientation of potential failure planes is important in determining the size and type of failure. The amount of available water greatly influences the strength of a potential failure surface and also adds to the weight of the unstable mass, increasing the pressure and contributing to movement. Topographic slope is also a contributing factor in controlling the force that causes failure. The relative importance of these four factors varies from place to place, but rock type, geologic structure, and available water are probably the most important. Some degree of slope is necessary to initiate failure, but if the other factors are present, failure can occur on slopes with a gradient of less than 5%.

Landsliding in the area can be grouped into three major landslide systems that represent complex groups of smaller coalescing landslides. Two of these systems, the Portuguese Bend and the South Shores, are well documented. The third, the Silver Spur system, was postulated for the first time in the Envicom Study (1975). Smaller, isolated landslides are scattered over the area, outside the three major systems.

The Portuguese Bend system is the most studied and publicized landslide in the area, and perhaps in the Los Angeles Basin. The most recent movement began in 1956, apparently as the result of grading operations, and involved movement in about 1/3 of the system. The recently active portion is shown on the Landslide Map (Figure 38). The cross hatched area on the map, adjacent to Crest Road, is a narrow valley interpreted as the remnant of the original pull-away at the top of the slide mass.

While no historic movement has been recorded within the South Shores landslide system, the many fresh scarps and closed depressions evident within the mass indicate that relatively recent movement has occurred. This system is apparently at equilibrium for the present, but renewed activity may occur if existing conditions are modified.

The Silver Spur landslide system was postulated in the Envicom Study, based on geomorphic evidence, as well as data contained in soil engineering reports submitted to the County of Los Angeles. Strong geomorphic evidence indicates that a very large slide mass may be present, but this system is designated as a possible landslide, because very little subsurface data is available. This evidence is the presence of a broad arcuate valley, located in the area of Deep Valley Drive and Silver Spur Road, that is perpendicular to the major drainages. The valley appears to be located on an ancient pull-away, and contains deposits identified by Jahns (1965) as deposited in an ancient lake. Borings made in conjunction with foundation investigations in the valley (reports on file with the County) show these deposits to be at least 65 feet thick.

landslides
figure 38

Active Landslide

Old Landslide

Possible Landslide

Major Filled Graben

Source: Envicom

palos verdes peninsula

The valley discussed above suggests the presence of an ancient landslide in that it is an anomalous topographic feature that does not "fit in" with the present pattern of canyons and valleys. The latter are oriented primarily northeast-southwest, while the valley along Silver Spur Road is oriented northwest-southeast. Also, the more recent canyons are narrow and steep-sided, while the Silver Spur feature is relatively broad.

An additional consideration is "closure" of the valley in the past. That is, its inferred shape, assuming the more recent canyons along Hawthorne and Crenshaw had not formed, and the presence of the lake beds implies that this valley was blocked or closed from normal drainage. Some geologists who have worked in the area believe (R. H. Jahns, personal communication) that the valley is a remnant of old topography, and that the closure of the valley and the formation of lake beds was caused by small slides blocking normal drainage. It is believed, however, that the evidence for a large slide complex is sufficiently great that it should be tentatively considered as such until surface and subsurface geologic work has demonstrated that it is not.

The Silver Spur landslide system appears to be a complex of ancient landslides, with more recent slides present locally on the overall ancient complex Recent developments upon the slide masses have added to the total weight of the system, increasing the driving forces. Also, since some of these developments are unsewered, the private sewage disposal systems are adding water to the complex. At this time, it is impossible to predict the current stability of the entire landslide system or that of any of its component slides. Much remains to be done in terms of accurately defining the limits of sliding, as well as the mechanisms involved, before any determinations can be made regarding the overall stability of the system.

Settlement

Settlement may occur in unconsolidated, unsaturated soils as the result of a more efficient rearrangement of the individual soil particles due to additional overburden pressures from foundation loads or grading, or due to earthquake shaking. Settlements of sufficient magnitude to cause structural damage are normally associated with rapidly deposited alluvial materials, subsurface peat deposits, improperly founded or poorly compacted fills, or highly fractured landslide deposits.

Rapidly deposited alluvial materials are present in the major filled graben areas at the heads of the Portuguese Bend and Silver Spur landslide systems. The consolidation of these deposits varies from site to site; but, in general, the potential for settlement must be considered when evaluating a particular development within these areas.

While most of the landslides in the study area are of the block-glide type with the main slide mass remaining intact, zones of intense fracturing are present, particularly along the toes and head-scarps of the landslides. These areas of jumbled debris are susceptible to settlement when subjected to the additional loads of development. These fractured areas are detectable only by careful geologic mapping and subsurface investigation, and are best analyzed on a site-by-site basis.

Tsunamis

Tsunamis are seismic sea waves generated primarily by vertical offsets of the sea floor accompanying submarine faulting. The destructive power of tsunamis is due to the fact that they travel at velocities approaching 400 miles per hour. While they are generally imperceptible on the open sea, tsunamis have been recorded that crested to heights of more than 100 feet before slamming into shore. These great heights are rare though, and depend on several factors, such as offshore topography, tide phase, and coastline orientation and configuration. Hazardous tsunamis may occur along the coastline of Rancho Palos Verdes as the result of submarine faulting at great distance or due to local offshore faulting.

Faulting at great distance is the most common source of tsunamis along the California coast. Typical source areas are the great submarine trenches off Chile and Alaska. The latter was the source area for the tsunami that struck Crescent City in 1964 with 13 foot waves, claiming 11 lives and causing over 11 million dollars damage. The Seismic Sea-Wave Warning System administered by the U. S. Coast and Geodetic Survey detects incoming tsunamis and supplies the endangered localities with the expected arrival times of the waves. The warning times vary with distance from the source, but for most tsunamis approaching the coast, several hours are available to evacuate the citizens and to make emergency preparations.

The tsunami hazard map of the State, compiled by the Division of Mines and Geology (1972a), identifies the south-facing coastal strip within the study area only as an area in which ". . . special caution should be observed during an alert. Area should be cleared if flood tide and tsunami are coincident." A more specific analysis is not warranted in the absence of a more definitive history of tsunami occurrence in the area.

Seiches

Seiches are standing waves produced in a body of water by winds, atmospheric changes, the passage of earthquake waves, etc. Studies of true seismic seiches are limited, but that by McGarr and Vorhis, 1968, of seiches induced by the Alaska earthquake of 1964 indicates that the largest recorded wave heights (double amplitude) did not exceed 1.2 feet. Since this is less than wave heights that would be expected from wind-induced waves, true seismic seiches are not considered as constituting a significant hazard in Rancho Palos Verdes.

It should be noted, however, that considerable confusion exists as to the application of the term seiche. The definition in Glossary of Geology (1972) limits a true seismic seiche to standing waves set-up by the passage of seismic waves from an earthquake. Traveling waves set-up by landsliding into or within a lake or reservoir, or those induced by the tilting of the water body, are not true seismic seiches. Dramatic examples of damage attributed at least in part to seiching at Hebgen Lake in Montana in 1959 (U. S. Geological Survey, et al., 1964) or at Kenai Lake in Alaska in 1964 (McCulloch, 1966) are more likely the results of traveling waves (or reflected traveling waves) set-up by landsliding or the tilting of the reservoir bottom. Significant tilting of major reservoirs or lakes is not expected in the study area, and the potential hazard from landslide-induced waves has been discussed previously under Landslides.

Liquefaction

Liquefaction involves a sudden loss in strength of a saturated cohesionless soil (predominantly fine grained sand) which is caused by shock or strain (such as an earthquake), and results in temporary transformation of the soil to a fluid mass. If the liquefying layer is near the surface, the effects are much like that of quicksand on any structure located on it. If the layer is in the subsurface, it may provide a sliding surface for the material above it. Liquefaction typically occurs in areas where the groundwater is less than 30 feet from the surface and where the soils are composed of poorly consolidated silt and fine sand.

In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to bring on liquefaction.

The potential for liquefaction in the area is very low, since the local soil deposits are relatively thin and cohesive. Liquefaction is not considered to be a significant hazard in the City.

Expansive Soils

The entire area is underlain by various combinations of Diablo and Altamont soils (U.S.D.A., 1969) which produce a dark grey, neutral clay. All of these combinations have a high shrink-swell potential.

While these soils are highly expansive, they should not be a factor in precluding development. Modern soil engineering procedures coupled with present-day foundation designs can effectively and inexpensively mitigate the effects of most expansive soils.

Air Pollution

As a safety hazard, air pollution is less likely to be as catastrophic as a major earthquake or be as completely devastating as fire or flood, but a definite health hazard still exists.

Rancho Palos Verdes is fortunate in that the air quality is relatively good, due to the environmental characteristics of the Palos Verdes Peninsula (see Natural Environment). There is cause for concern, however. During periods of certain climatic conditions (e.g., Santa Ana Winds), the Peninsula is severly impacted by "smog." These times of poor air quality very often exceed the limits set by the Los Angeles County Air Pollution Control District (A.P.C.D.). It should be noted that certain types of air pollution (primarily, sulfur dioxide) not only cause damage to man, but to plants, animals, and some materials, as well.

Hazards Peculiar Rancho Palos Verdes and Environs

The coastal bluffs which rise from the ocean are indeed an impressive and beautiful geologic phenomenon. The bluffs and associated seascape draw people from all over Southern California. Unfortunately, there is an element of danger that all must know and respect. That is the possibility of falling from the bluff. Several times a year visitors and residents alike mistakenly wander too close to the point of danger and fall, causing injury and, in some cases, death.

There appear to be several "reasons" for falling, but the principal reason is being too close. Weathering and other factors often leave the geologic structure weak and deteriorating and subject to breakage by the person who comes too close. Also, people have been known to fall due to stumbling while walking parallel to the bluff. In addition to the closeness factor, people are quite often hurt while trying to descend or ascend the cliffs. This usually occurs when the person is not using an established access point, but rather "blazing" a trail of his own.

General Hazards and Health Emergencies

Due to the nature of "General Hazards and Health Emergencies," no attempt is made to identify all such factors, rather the list below provides examples of obvious occurrences:

- Traffic accidents
- Heart attacks
- Drownings and near drownings
- Industrial accidents
- Recreation accidents
- Drug overdose

Wild and Domestic Animals

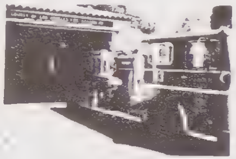
The historic development of the Peninsula has slowly eliminated several species of wildlife, such as the deer and eagle. However, many of the more adaptable species have remained. At the present time, wildlife populations consist of skunks, rabbits, small rodents, a variety of birds, reptiles and possibly coyotes and fox (See Natural Environment Element — Biotic Resources). Peninsula wildlife does not pose a major health or safety problem to area residents, however, mixing wild animals, domestic animals and humans create potential incidents of snake bite, rabies, etc.

Along with the usual dogs and cats, the nature of development on the Peninsula has and will continue to allow for the keeping of certain large domestic animals, such as horses, in some areas. While no major safety or health problems currently exist, occasionally isolated cases are reported. These cases most generally require preventative measures rather than specific health or medical measures.

Safety Programs

This section deals with various programs designed to avoid hazards, help during hazardous conditions, and/or provide assistance after a hazardous condition has occurred. Each program is discussed and evaluated in terms of existing and proposed activities.

In general, the evaluation of existing safety programs which serve the City of Rancho Palos Verdes indicate a high level of protection.

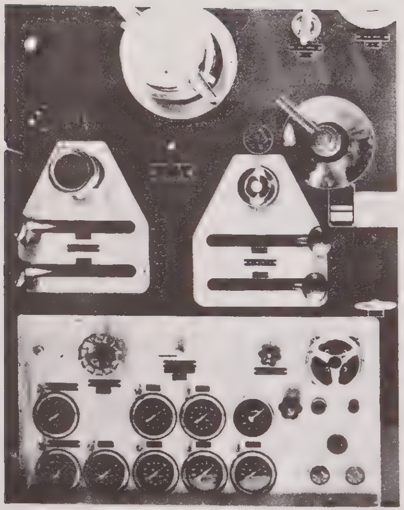


Fire Protection

Currently, the County of Los Angeles provides fire protection to the City of Rancho Palos Verdes through the operation of several fire stations. In addition to Rancho Palos Verdes, the following list of stations and equipment also serve Rolling Hills, Rolling Hills Estates and other nearby communities (Schneider):

- Fire Station 53, 6124 Palos Verdes Drive South, Rancho Palos Verdes
  - 1 Engine Company
- Fire Station 83, 4000 Miraleste Plaza, Rancho Palos Verdes
  - 1 Engine Company
  - 1 Patrol Unit (detailed to Nike Site location)
- There is no longer a Nike facility at 30940 Hawthorne Boulevard.
- Fire Station 56, 12 Crest Road West, Rolling Hills
  - 1 Engine Company
- Fire Station 106, 413 Indian Peak Road, Rolling Hills Estates
  - 1 Engine Company
  - 1 Truck (ladder) Company
  - 1 Paramedic Rescue Squad
  - 2 Reserve Engines
- Fire Station 6, 25517 Narbonne Avenue, Lomita
  - 1 Engine Company
  - 1 Paramedic Rescue Squad
- Fire Station 36, 127 W. 223rd Street, Carson
  - 2 Engine Companies
  - 1 Paramedic Rescue Squad
  - 1 Reserve Engine
  - 1 Battalion Chief
- Fire Station 127, 2049 E. 223rd Street, Carson
  - 1 Engine Company
  - 1 Truck (snorkel) Company
  - 1 Foam Unit
  - 1 Division Assistant Fire Chief
- Fire Station 116, 755 E. Victoria Street, Carson
  - 1 Engine Company
  - 1 Truck (ladder) Company
  - 1 Paramedic Rescue Squad
- Fire Station 105, 18915 Santa Fe Avenue, Carson
  - 1 Engine Company
  - 1 Deluge Unit
  - 2 Reserve Engines

Fire hazards can be minimized in two basic ways. The first method involves the reduction of fire starts. Preventative fire control, as it is termed, emphasizes safety in the design, maintenance, and use of structures. Proper safety measures can effectively prevent the possibility of fire. The City currently contracts with the County Building and Safety Division, and, therefore, is under the regulations and codes of the County of Los Angeles Uniform Building Laws (1973 edition).



The second method of hazards reduction emphasizes the effective response aspect of fire control. Effective response can be assisted by providing necessary access and adequate amounts and pressures of water. The County of Los Angeles Fire Department has developed uniform street and development standards for fire protection in urban settings. These standards address the aspects of access and fire flow requirements and were summarized in the Public Safety section of the Envicom Study; however, the standards are primarily based on a typically flat urban area. Due to the varied terrain and development patterns on the Peninsula, the normal standards may not always apply. The general rule-of-thumb for response time within Rancho Palos Verdes is 3 to 4 minutes, with some exceptions. Plans for station relocation and/or an additional facility will ensure the 3 to 4 minute response time.

The helicopter has proven to be a very effective tool in the fighting of brush fires. The occasional brush fire in Rancho Palos Verdes frequently requires helicopter assistance, which has the capability of responding to a call within 14 minutes. Based in Pacoima, the helicopter generally responds with 350 gallons of water for a "drop" and a crew of 15 well-trained brush fire-fighters. The County has proposed that the existing helicopter pad at the Nike Site be used by the Fire District for water re-fueling.

Health Care, Emergency Medical Aid and Rescue

The City of Rancho Palos Verdes is served by two private ambulance companies which are licensed and regulated by the County Department of Health Services, through the County-wide Emergency Aid Program. The ambulance companies currently providing service are Goodhew and Bowers. Although neither company has Peninsula-based vehicles, the response time from bases in the surrounding communities of Lomita, Torrance, Redondo Beach and San Pedro averages about 6 to 7 minutes.

At the present time, the Palos Verdes Peninsula has no in-patient hospital facilities. Several acute care hospitals, however, are located in surrounding communities. They are:

- Little Company of Mary (Torrance)
- Riviera Community (Torrance)
- J. S. Torrance Memorial (Torrance)
- St. Michael's (Hermosa Beach)
- South Bay (Redondo Beach)
- Harbor General (Torrance)
- San Pedro Community (San Pedro)

The following table is an analysis of time and distance factors from various locations in Rancho Palos Verdes to selected hospitals.

From	To	Speed	Miles	Shortest Time	Longest Time
Crest & Hawthorne	Little Co. Mary	40-45	8.7	20:30	37:50
Crest & Hawthorne	Torrance Memorial	40-45	6.7	15:30	26:10
Silver Spur & Hawthorne	Torrance Memorial	35-45	3.4	09:00	16:30
Marineland	San Pedro Community Hospital	25-45	7.0	14:20	23:30
Golden Cove	Little Co. Mary	35-45	10.2	24:45	36:20
Golden Cove	San Pedro Community Hospital	35-40	8.2	16:40	26:50

Source: Health Care Management Corp., 1974

It appears that the existing hospitals are adequately meeting the needs of Peninsula residents. Study by the Comprehensive Health Planning Council of Los Angeles County confirms this adequacy.

Basic health services, such as communicable disease control, public health administration and enforcement of refuse collection ordinances, nursing, clinical services, and related activities are provided at no cost to the City by the County Health Department.

Currently, two paramedic rescue squads (Los Angeles County Fire Department) serve contracted areas on the Palos Verdes Peninsula. The south and west portion of the Peninsula is served by the Paramedic Rescue Squad at Fire Station 106 in Rolling Hills Estates Fire Protection), while Fire Station 6 in Lomita serves the north and east. The Paramedic Rescue program provides 24 hour service ranging from aiding heart attack victims, to assisting victims who may have fallen from one of the coastal bluffs, to aiding persons stuck in an elevator. Each squad is made up of three specially trained firemen.

An additional form of rescue operation is provided for water-oriented activities. The Los Angeles County Lifeguards are responsible for lifesaving operations at County beaches. With the opening of Abalone Cove, lifesaving activities will occur in Rancho Palos Verdes. Furthermore, rescue operations for boats in distress off the Rancho Palos Verdes coast are currently provided by Los Angeles County, Los Angeles City, and the U. S. Coast Guard. Although each has its own jurisdiction, in an emergency, jurisdiction is rarely considered, but rather who can get there first.

Police Protection

The City contracts with Los Angeles County for police protection.
The Lomita Station opened in 1975. The City of Rolling Hills Estates has joined Rancho Palos Verdes and Rolling Hills in its joint-city program contract with the County of Los Angeles for police protection.

- Early-morning Shift – 2 patrol cars
- Day Shift – 4 patrol cars
- Night Shift – 4 patrol cars

Response time is a problem that is recognized by the Sheriff and City. During 1973, the average response time for early morning shift was 8.2 minutes, day shift 14.4 minutes, and night shift 13.3 minutes. In an effort to reduce response time, goals have been established as part of the contract. The Sheriff's Office has broken responses into three categories: Emergency, Immediate, and Routine, with response time goal to be achieved for each type. The percentage is a measurement of times the Sheriff will actually achieve the goal. The proposed response time goals are:

	Goal	Achievement Percent
Emergency	4 minutes	80%
Immediate	6 minutes	70%
Routine	10 minutes	60%

The response time goals are being achieved.

In October of 1975, a new Sheriff's Substation is scheduled to commence operation in the Lomita area. This addition is expected to increase the level of service provided by the Sheriff by reducing transit time and improving the level of supervision.

During emergency situations, back-up assistance can be provided by utilizing additional Sheriff units normally assigned to nearby contract cities (Rolling Hills, Rolling Hills Estates, Lomita) and unincorporated areas of the County.

Civil Defense and Disaster

The City of Rancho Palos Verdes, together with other South Bay member cities, make up the Area "G" County Civil Defense and Disaster Planning Board Region I of the State of California. This organization provides cities with disaster planning assistance, public information, and coordination of action programs and mutual aid agreements. Area "G" is currently assisting in the preparation of the City's first Emergency Operating Plan (EOP). The EOP is a document which sets forth the functions and resources of the City during a disaster. In addition, a plan for Standard Operating Procedures (SOP) is also being prepared. The SOP identifies specific actions that are necessary when a disaster occurs. Some of the components which are included in the SOP are listed below.

- Emergency communications
- Disaster routes
- Medical facility locations
- Emergency Operation Center (location and staffing)
- Emergency utilization of resources

The following schematic (Figure 39) is provided as a conceptual Disaster Routes Network which may be used in the development of the SOP. It should be pointed out that while the network is designed to work as a total unit, varied emergencies may disrupt flow over one or more of the segments. For example, if an earthquake were to trigger the Portuguese Bend landslide, Palos Verdes Drive South might become impassable.

The City is a member of the California Master Mutual Aid Agreement, which provides for disaster assistance from other California cities after a major disaster has been declared by the Governor.

Flood Control

In Rancho Palos Verdes, flood control is normally the responsibility of two County agencies: the Road Department and the Flood Control District. (See Flood Control discussion in Infrastructure for further information.) In emergency situations, such as flash flooding and mud flow, each of the agencies will carry out respective emergency operations until the immediate danger has passed.

Mud flows usually are the result of rainfall in a natural area which does not have adequate ground cover due to fire or over-use. While primary methods for elimination of mud flows are through prevention of fires and rules governing use, these situations will inevitably occur. At such times, the principal safety program is usually immediate reseeding of the affected area.

Emergency Communications

In times of emergency, whether major or minor, a dependable and flexible communications system is essential. For the everyday emergency, the telephone is the fastest and most reliable communications system available. In order to make the telephone system even more effective, State law now requires that all cities must develop a standardized single emergency services telephone number system (see Communications Systems in Infrastructure). The "911 System" will ultimately provide a single emergency telephone number (911) which, when called, will route the call to Public Safety Answering Point (PSAP), which in turn transfers it to the correct emergency-responding agency (e.g., fire, police, etc.), thus cutting the response cycle. Although the system is still in the initial planning stages, it is expected that, in Los Angeles County, the system will be a sophisticated computerized mechanism, and that public "pay" phones will not require a coin to operate the 911 number. (County of Los Angeles, Communications Department.)

During times of major emergency or imminent disaster, the following communications systems can be used to disseminate emergency warnings, information, instructions, and requests:

- Radio
- Television
- Microwave Systems
- Amateur Radio (ham radio)

The development of an emergency communications program is included as an integral part of the Standard Operating Procedure (see Civil Defense and Disaster) which is currently being prepared.

Animal Control

Currently, the County Animal Control Department is responsible, under contract, for enforcing the provisions of the Animal Control Ordinance (Los Angeles County Ordinance 4729) and for carrying out other related functions. The animal control program consists of the following major operations (Preston, May 1975):

- Enforcement of "leash law," license law, rabies law, etc.
- Issuing of permits for stables, shelters, etc.
- Inspection of boarding areas, animal clinics, and suspected health, safety, and mistreatment areas.
- Removal of dead, sick, or unwanted animals.
- Operation of spaying and neutering clinics.
- Apprehension or destroying of menacing or sick wildlife.

disaster routes

figure 39

Disaster Routes

Source: L.A.County Road Dept.

palos verdes peninsula

- Relocation of appropriate wildlife (in coordination with California Department of Fish and Game).

- Education, through the dissemination of literature.

Other organizations which are involved in related programs include the Humane Society and the 4-H Club.

Air Pollution Control

The Los Angeles County Air Pollution Control District (APCD) is responsible for monitoring and regulating air quality. Regulation VII of the APCD was adopted by the Board of Supervisors in 1974. The regulation, referred to as the Emergency Episode Plan, establishes a uniform set of rules which governs actions to be implemented by the APCD, local governments, business, and citizens during periods of high contaminants. The plan calls for a system of alerts which primarily require shut-down of various polluters.

Codes and Ordinances

There are numerous codes and ordinances which set safety standards, specifications, and regulations. Although the City has developed certain safety regulations, contracts and service agreements with the County currently set most safety standards. The following list of codes and ordinances are those of primary concern to safety:

- Building Code
- Zoning Ordinance
- Fire Code
- Subdivision Ordinance
- Health and Safety Ordinance (State)

In many cases, the County is responsible (by contract) to enforce many of these codes and regulations.

While the various codes and ordinances cannot be expected to be perfect for all situations, they should:

"(1) reflect the concept of risk and uncertainty; (2) be dynamic in allowing for amendment resulting from new knowledge and improved understanding; (3) be rationally interrelated and tied to a plan which considers probable forms of natural disasters among its elements; (4) be based on a logic which the legislator, administrator, and citizen can fully comprehend; thus, allowing for effective participation in the decision-making process." (Petak, et al, Pg 145).

One of the most significant and important documents in respect to safety is the building code. Rancho Palos Verdes currently is governed (by adoption) by the County of Los Angeles' Uniform Building Laws, 1973 (U.B.L.). The U.B.L. is made up of four separate ordinances:

- Building
- Plumbing
- Mechanical
- Electrical

The primary purpose of the U.B.L. is to protect the public health, safety, and welfare by setting minimum construction and building standards which minimize hazard impacts. While all portions of the U.B.L. are important, Chapter 70 (Excavation and Grading) and Section 2314 (Earthquake Regulations) of Chapter 23 (Engineering Regulations) are particularly important to Rancho Palos Verdes. This is primarily due to the area's physical characteristics, such as slope, soils, and geologic structure. It should be noted that, while the County's U.B.L. is substantially modeled after the Uniform Building Code (International Conference of Building Officials), the recently published U.B.L. (1975) is approximately two years behind the Uniform Building Code in respect to the establishment of tougher minimum building and construction standards.

The City adopted its Development Code, Zoning and Subdivision Ordinances, in December 1975.

As with most other codes and ordinances, the zoning ordinance is principally designed to protect the public health, safety, and general welfare. Within the numerous zoning districts (based on land use), regulations generally specify:

- The use or function of a structure
- The density of population
- The lot coverage (e.g., structure and open space)
- The minimum dimensions of the structure

State law requires that zoning be consistent with the General Plan. Upon adoption of this General Plan, the development of the accompanying Zoning Ordinance will be one of the first steps in the implementation process.

Hazard Potential and Risk

Analysis of the hazards inventory indicate that, while all hazards are of concern, geologic hazards (earthquakes and landslides, primarily), fire, and flood are potentially the most destructive in terms of life and property. Of these three, earthquakes and associated secondary effects are capable of the most widespread damage. Fire and floods are generally confined to isolated areas. This is due to the diverse topography and the ability of man to prevent and/or deal with flooding and fires. This section discusses earthquake and associated hazards in terms of potential destruction and risks. Some of the information was based on a study prepared by the National Oceanic and Atmospheric Administration (NOAA) entitled A Study of Earthquake Losses in the Los Angeles, California Area (1974).

The census indicates that fewer than 220 residential structures were constructed on the Peninsula prior to 1933. A majority of these older structures appear to be within the Palos Verdes Estates and Miraleste areas. It is assumed that the major structural damage might result in buildings constructed before 1933, when building code requirements for seismic resistance were adopted. Furthermore, due to vintage and construction techniques, it is expected that most vital public buildings (administrative, fire, police) will withstand major quakes and recover quickly enough to function as emergency operation assistance centers.

Estimates of infrastructure damage due to a major earthquake will vary from negligible to widespread. It is suggested that major supply lines (water, gas) might be subject to major damage. Within Rancho Palos Verdes, the major concern lies with vital services located on landslide areas. An earthquake could trigger landslides, which could eventually result in severe damage to the roadway, water, communications, and power networks. Furthermore, there seems to be some question as to whether the water storage facility adjacent to the top of the Portuguese Bend slide area would be able to withstand a major earthquake.

The predictive analysis of events to be expected from the Newport-Inglewood fault zone has defined these events in terms of a magnitude and a recurrence interval. The level of risk associated with each event is indicated by the recurrence interval in much the same manner as the risk from other natural hazards, such as flooding, is defined by a recurrence interval. For example, it is common practice to design flood-prevention works to accommodate the flows from a 100-year storm. Where a higher level of protection is desired, as, for example, along the Santa Ana River in Orange County, the design levels are increased to accommodate the flows from storms occurring at roughly 300-500 year intervals.

The risk of earthquake should be considered in a similar manner. Design for the 100-year event is considered minimum; where a higher level of protection is desired, such as for hospitals, design levels should be increased to protect against earthquakes with longer recurrence intervals. The levels on the following table are recommended for earthquakes expected from the Newport-Inglewood fault zone.

Use	Recurrence Interval	Expected Magnitude
Limited occupancy (warehouses, automated manufacturing facilities, etc.)	100 years	5.2
Normal occupancy (residences, stores, etc.)	150 years	5.6
Critical facilities (hospitals, fire and police stations, schools, critical utilities, etc.)	300 years	6.5

The risk of an earthquake from the San Andreas fault is a special case. As discussed in the previous section, a major or "great" earthquake is considered imminent. As a result, it is recommended that all structures, except possibly limited occupancy, be designed for an earthquake of magnitude 8.5 on the San Andreas fault. (Envicom)

Impacts

The intent of the Safety section is to identify potential hazards and hazard areas, and to provide policies and recommendations by which to increase safety and reduce hazards. Although the principal impact of this section is, for the most part, expected to be beneficial to both man and natural systems, some adverse economic conditions may arise.

The financial impact will probably be the City's greatest concern. The development of future safety programs and the possible expansion of existing programs may or may not require some public financing. If required, the initial costs of such programs, however, are expected to be largely offset by Federal, State, and county assistance programs, and through the ultimate reduction of damage caused by hazards.

Costs to individuals may also increase in the form of construction costs, due to future building standards, and in the form of hazard prevention costs due to landscaping and services; however, these too are expected to be offset in the long term by reduction of damage and/or loss of possessions and individuals.

A far reaching new concept worthy of consideration is the establishment of a Public Safety Department. A cursory feasibility study of the financial impact resulting from the establishment of such a department appeared to be very favorable, and indicated operational cost reduction along with improvement of services.

Safety Policies

It is the policy of the City to:

1 — Promote the education and awareness pertaining to all hazards which affect Rancho Palos Verdes residents.

2 — Adopt and enforce building codes, ordinances, and regulations which contain design and construction standards based upon specified levels of risk and hazard.

3 — Encourage cooperation among adjacent communities to ensure back-up law enforcement assistance in emergency situations.

4 — Cooperate with the fire protection agency and water company to ensure adequate water flow capabilities throughout all areas of the City.

5 — Cooperate with the fire protection agency to determine the feasibility of utilizing the existing helicopter "pad" at the Nike Site for a water refueling location.

6 — Develop stringent site design and maintenance criteria for areas of high fire hazard potential.

7 — Implement reasonable house numbering and consistent street naming systems.

8 — Coordinate with the Fire Department to determine the feasibility of providing emergency access to the end points of long cul-de-sacs (in excess of 700 ft.).

9 — Ensure that services are provided to deal adequately with health and sanitation problems.

10 — Ensure that local, County, State, and Federal health, safety, and sanitation laws are enforced.

11 — Ensure that adequate emergency treatment and transportation facilities are available to all areas of the city.

12 — Promote development and maintenance of liaison with various levels of health, safety, and sanitation agencies.

13 — Encourage the availability of paramedic rescue service.

14 — Be prepared to implement contingency plans to cope with a major disaster.

15 — Maintain liaison with other local, County, State, and Federal disaster agencies.

16 — Regulate the activities, types, kinds, and numbers of animals and balance the interest of animal owners and persons whose welfare is affected.

17 — Ensure the protection of compatible levels of wild animal populations.

18 — Encourage liaison of animal regulation activities with adjacent cities.

19 — Give consideration to alternative animal control and enforcement methods, and to facilitate for shelter, medical treatment, and training.

*See also Natural Environment Element, Policies For Public Health And Safety.

sensory environment

IT SHALL BE THE GOAL OF THE CITY OF RANCHO PALOS VERDES THROUGH PROPER LAND USE PLANNING AND REGULATIONS, TO PROVIDE FOR A QUIET AND SERENE RESIDENTIAL COMMUNITY WITH A MINIMUM OF RESTRICTION ON CITIZEN ACTIVITY.

PALOS VERDES PENINSULA IS GRACED WITH VIEWS AND VISTAS OF THE SURROUNDING LOS ANGELES BASIN AND COASTAL REGION. BECAUSE OF ITS UNIQUE GEOGRAPHIC FORM AND COASTAL RESOURCES, THESE VIEWS AND VISTAS ARE A SIGNIFICANT RESOURCE TO RESIDENTS AND TO MANY VISITORS, AS THEY PROVIDE A RARE MEANS OF EXPERIENCING THE BEAUTY OF THE PENINSULA AND THE LOS ANGELES REGION. IT IS THE RESPONSIBILITY OF THE CITY TO PRESERVE THESE VIEWS AND VISTAS FOR THE PUBLIC BENEFIT AND, WHERE APPROPRIATE, THE CITY SHOULD STRIVE TO ENHANCE AND RESTORE THESE RESOURCES, THE VISUAL CHARACTER OF THE CITY, AND PROVIDE AND MAINTAIN ACCESS FOR THE BENEFIT AND ENJOYMENT OF THE PUBLIC.

Noise

By definition, noise is unwanted sound; however, what is unwanted sound becomes a matter of situational interpretation. The youth, listening to rock music, experiences this sound as music; however, his neighbor, trying to relax and read his evening paper, experiences this same sound as noise.

Sound has physical properties which are not only heard but can be measured and felt. For the human ear, sound has two significant properties, intensity or loudness, and frequency or pitch. Intensity can be measured in decibels using a sound meter. The sound meter measures pressure that the sound's energy exerts. This is called acoustic energy. The frequency of the sound is measured in terms of hertz, representing one cycle per second, and is abbreviated Hz. This frequency can be visually displayed with the aid of an oscilloscope. Unlike intensity, the frequency of any given sound source remains constant, because it is a function of the mass or density and elasticity of the vibrating object or sound source. Therefore, when one strikes an object the pitch (frequency) remains the same although the loudness or intensity will vary, depending upon how hard the object is struck.

Sound does not exist in a vacuum; its acoustic energy must have an object to strike in order to produce vibrations which are interpreted as sound. This vibration production function of sound is one of the major reasons sound or noise controls are necessary. Sound moves in wave patterns like the ocean. The waves are alternate rings of compressed and rarefied air moving away from a control source. As the waves encounter an object, the force exerted is a push, then a pull, on the object. This is why sound can break glass or cause a window screen to vibrate.

Sound in modest proportions is desirable, for it reassures us that we are still alive and that there is still life around us. However, as sound intensity increases, these utilitarian functions soon become dysfunctions, and sound degenerates into noise. Given the properties of sound as discussed above, too much noise is not only psychologically disturbing, but it also has the potential of doing physical harm to man and man's environment.

Sound (or more precisely, sound pressure) is measured in units of decibels. The ear hears or responds to these decibels on a logarithmic scale, and not at a 1 to 1 ratio. Therefore, doubling the decibel or sound pressure does not double the volume. Ten decibels is ten times more intense than 1 decibel, 20 decibels is 100 times the intensity, and 30 decibels is 1000 times the intensity. This feature of the human ear allows us to hear a wide range of sound volumes. This range stretches from about 10 to well above 120 decibels. However, 10 dB(A) is just audible, where at 120 dB(A) and above the ear begins to feel pain.

The (A) in dB(A) denotes that the decibel reading was taken on the A weighting scale. The A weighting scale is recommended for use in noise elements by Section 65302(g) of the California State Government Code. The A scale is generally used because, unlike the C scale which does not discriminate sound pressure levels over various frequencies, the A scale does discriminate, and in so doing, it comes closer to approximating the audibility range of the human ear.

Effects of Noise on Man

According to a report issued by the U.S. Environmental Protection Agency, impairment to the human ear begins at about 70 dB(A). This 70 dB(A) is tantamount in volume to freeway traffic 50 feet away, or loud conversation 2 feet away. Hearing damage occurs at 90 dB(A) if this volume is sustained over several hours of the working day. Ninety dB(A) is about the same loudness as a heavy truck going past at about 50 feet away. Surprisingly enough, many kitchens have sound levels of 90 dB(A) when the radio is on and pots and pans are being banged around. The following chart indicates the relative levels of noise producers and their effects.

The human ear is so constructed that we can hear or be exposed to a wide range of frequencies and intensities without damaging the delicate components of our inner ear. However, if excessively loud noises are frequent or sustained, the damage may be permanent, and such noise-induced hearing loss cannot be restored, either through surgical procedures or hearing aids.

The ear contains a chamber which is filled with tiny hair follicles. As the sound waves enter this chamber, they cause these hairs to sway back and forth, much like seaweed at the bottom of the ocean sways with the ocean currents. This swaying causes impulses to be sent to the brain, which are interpreted as sound. When a very loud sound occurs, it causes strong and violent waves; and just as seaweed gets torn from the ocean floor by turbulent currents, then sound waves can tear the hair follicles from the floor of the ear chamber, resulting in pain and hearing impairment.

There are other considerations than the potential physical damage to the ear in assessing the effect of noise on man. Varying degrees of noise affect man in different ways. Noise above 35-45 decibels will disturb a sleeping person; decibels between 50-60 decibels makes it difficult to carry on quiet conversation; and with noise above 85 decibels, stress reactions can be expected. Stress reactions include such things as increased heart and pulse rates, increased adrenalin flow, and the tightening of stomach muscles. Most sudden, loud, or unexpected noises are instinctively interpreted as danger and produce these stress reactions. This occurs several times a day, but the occurrences generally go unnoticed. When one is exposed to loud noise for long periods of time, these stress reactions occur more frequently, producing both an emotional and physical strain on the body. This stress has been known to lead to increased tension, ulcers, indigestion, "heart-burn," gastro-intestinal malfunctions, and heart disease.

A study of steelworkers indicated that those who worked in noisy environments are more aggressive, distrustful and irritable than workers in quieter environments. In addition, an even more recent study has led doctors to believe that noise affects the health of unborn children. All of these realizations suggest, that if we are to remain healthy as we continue to expand and develop our "civilization," noise must be controlled and planned for, and not just planned on.

Transportation Noise

Sources

Standard sections on noise sources address themselves to automobiles, trucks, motorcycles, buses, trains, and planes. Rancho Palos Verdes has no railroad lines either in or abutting the City, and there are no regularly scheduled flight paths or aircraft over the City. This is true of aircraft taking off or landing at Los Angeles International Airport, Long Beach, or Torrance airfields.

Rancho Palos Verdes is served (somewhat) by the Southern California Rapid Transit District (SCRTD). SCRTD has only one regular bus route in our City, Route 125. This route runs mainly along Hawthorne Boulevard on its way to and from downtown Los Angeles. This line runs four buses in the early morning and then four on the return trip in the late afternoon, beginning at 4:00 p.m. until 5:25 p.m. At no time are there more than three SCRTD buses in Rancho Palos Verdes at any one time.

Given the above, it is apparent that discussing the noise producing impact of trains, buses and planes in Rancho Palos Verdes would be unwarranted; therefore, further discussion of these issues have been omitted. It should be noted that the minimal impact of buses on noise levels in Rancho Palos Verdes will be reflected in the contour map. The effect of vehicular noise as emitted from our arterials and major collectors is also reflected in this contour map.

Methodology for Developing Current Noise Level Countours

Pursuant to Section 65302(g) of the California Government Code, a contour map has been prepared. There are two decibel locations delineated on the map. The first shows the 60 decibel locations measured on the A weighting scale, as emitted from the City's arterials and selected major collectors. The second contour shows the impact that these arterials and collectors have on adjacent schools and outdoor recreation areas down to 45 dB(A). The location of these two contours on the map indicates the overall effect sound emissions from our arterials and collectors have on the Rancho Palos Verdes community.

For the most part, the data used to calculate the noise contours was obtained through field investigations. Selected sites were monitored with a noise meter during the period of highest traffic volume. This period was determined based on data obtained from the 1972 and 1973 Traffic Counts, as published by the Los Angeles County Road Department Traffic and Lighting Section.

Chart 1

	Noise Level	Response	Hearing Effects	Conversational Relationships
	150			
Carrier Deck Jet Operation	140			
		Painfully Loud		
	130	Limit Amplified Speech		
Jet Takeoff (200 ft.) Discotheque Auto Horn (3 ft.)	120	Maximum Vocal Effort	CONTRIBUTION TO HEARING IMPAIRMENT BEGINS	
Riveting Machine	110			
Jet Takeoff (2,000 ft.)				
Garbage Truck	100			Shouting in ear
N.Y. Subway Station		Very annoying		
Heavy Truck (50 ft.)	90	Hearing damage (8 hours)		Shouting at 2 ft.
Pneumatic Drill (50 ft.)				
Alarm Clock	80	Annoying		Very loud conversation, 2 ft.
Freight Train (50 ft.)				
Freeway Traffic (50 ft.)	70	Telephone use difficult		Loud conversation, 2 ft.
		Intrusive		
Air Conditioning Unit (20 ft.)	60			Loud conversation, 4 ft.
Light Auto Traffic (100 ft.)	50	Quiet		Normal conversation, 12 ft.
Living Room				
Bedroom	40			
Library				
Soft Whisper (15 ft.)	30	Very Quiet		
Broadcasting Studio	20			
	10	Just audible		
	0	Threshold of Hearing		

noise level contours

figure 40

rancho palos verdes

The investigator went to selected locations along the arterials and major collectors at these designated times. Beginning at curbside, with a noise meter, the investigator moved away from the street during heavy traffic flows until the needle held its position at 60 decibels on the A weighting scale. Once the 60 dB(A) location was found, the meter was monitored for approximately fifteen minutes, and each deviation over 66 dB(A) was recorded. The investigator then measured the distance between the location and curbside. The ambient noise level was also taken from this 60 dB(A) location.

The contours showing the 45 dB(A) locations, adjacent to outdoor recreation areas and schools, were calculated using the inverse square law, and based on the decibel reading taken at the 60 dB(A) location. The inverse square law is a principle concerning sound and decibel computation which states that the mean-square sound pressure changes in inverse proportion to the square of the distance from the sound source. Under this condition, the sound pressure level decreases 6 decibels for each doubling of distance from the source.

Sound behaves in very predictable ways in any given setting, but changing any element of the setting may change the way sound behaves. Some settings absorb acoustical energy, which limits the distance sound can travel; some settings (like steep grades) reflect and project acoustical energy upward, causing sound to carry farther. Since the calculations for the 45 dB(A) contours were based on the readings taken at the 60 dB(A) locations, they automatically control for the changes in acoustical settings which differed at each reading location. Therefore, even though these contours are only calculated estimates, they are more accurate than calculations which may be based only on curbside readings or projections based on average (ADT) and its percentage of trucks.

Projected Noise Growth

The most severe prediction relative to noise growth, made by the Environmental Protection Agency, is that the ambient noise level in our environment is increasing at the rate of 10 decibels per year. Should this dire prediction hold true, the goal of a quiet and serene community would be unobtainable.

The General Plan calls for a moderate population increase. The bulk of this increase will be reflected in low density residential development, therefore not requiring the use of heavy trucks that commercial, industrial, or other land uses might induce. Heavy trucks are a major contributor to increased noise levels in the environment.

In addition to the low density residential growth which will characterize Rancho Palos Verdes' future development, the State of California has set noise standards for diesel trucks, motorcycles, and all other motor vehicles manufactured after 1987. Diesel trucks must not exceed 70 dB(A) after 1988. The State has also set a noise standard of 80 dB(A) measured at 50 feet from street centerline for all other motor vehicles manufactured after 1987. These standards are more restrictive than what State law currently allows for vehicle noise emissions.

Since the State regulates noise emissions from motor vehicles, the major source of noise in Rancho Palos Verdes, the City is pre-empted from passing any laws or ordinances calling for stricter regulations or enforcement. For this reason, the City is highly dependent on the State for the control and the enforcement in this area. Therefore, the City should encourage the State Legislature and the State law enforcement agencies, such as the California Highway Patrol, to actively pursue legislation to reduce and control vehicle noise emissions and to vigorously enforce all such laws.

Active enforcement on the part of State agencies, coupled with a viable City ordinance controlling community noise will ensure that Rancho Palos Verdes' future environment will be free of abusive sound and unnecessary noise.

Community Noise

Community noise has two basic components, steady state or constant level noise, and intermittent single event noise. These two types of noise affect the outdoor noise level, causing it to rise above the ambient noise level. Ambient noise is the all-encompassing noise within a given environment.

Steady State Noise

In Rancho Palos Verdes, steady state noise would include noise generated from traffic flows, activities around service stations, Golden Cove Center, Peninsula Center, and other non-residential uses in the community. A neighbor's airconditioner or pool equipment might also be considered as contributors to steady state or quasi-steady state noise intruders.

For the most part, the impact of these steady state noise intruders can be mitigated through the use of land strip buffers, landscaping, berms and site design. These solutions would be quite effective in mitigating noise intrusion for both traffic and non-residential steady state noise generators.

Controlling noise intrusion emitted by residential steady state noise producers will require an ordinance which will prescribe setbacks and quantifiable permissible noise level limits.

Single Event or Intermittent Noise

Although of shorter duration, the intermittent or single event noises are often more annoying than the steady state constant level noise. These include such noise as a plane flying overhead, a neighbor with his stereo or television too loud, barking dogs, or a roaring motorcycle.

In Rancho Palos Verdes, the roaring motorcycle must be the most annoying of the intermittent or single event traffic noise producers. During the noise survey which was performed in October 1974, along Rancho Palos Verdes' major collectors and arterials, the number of significant deviations which occurred at the 60 dB(A) location were recorded, noting the number of occurrences and the producer. Although motorcycles were exceeded in this category by trucks, the truck traffic is generally limited to major collectors and arterials, and their occurrence sharply diminishes at night. Unlike the trucks, motorcycles do not limit themselves to the major streets, and are operated at all hours. Because of this, their occurrence is more noticeable, hence more annoying than other intermittent vehicle noise producers.

In a source quoted in The Economic Impact of Noise prepared by the National Bureau of Standards, December 31, 1971, a table was prepared which gives a rank ordering of noise annoyances by source and income level. This table combined response for persons in Los Angeles, Boston, and New York.

The annoyance caused by intermittent sources is heightened because of the difficulty in controlling such noise intrusion. The intermittent nature of the noise makes the enforcement of noise control ordinances extremely difficult. Even after the development of a noise ordinance, which should set quantifiable permissible noise level limits, it can only be enforced if the enforcing official is present at the time the permissible noise level is being exceeded. For these types of noise intrusions, courtesy and respect for one's neighbor is the most efficient mitigating measure that can be exercised.

Rank Ordering of Noise, By Source and
Income Class: Los Angeles, Boston, and New York (Combined)

Source	All Incomes	Income Class: High	Middle	Low
Traffic	10.0	10.0	10.0	9.8
Children/Neighbors	6.9	5.0	6.2	10.0
Planes	2.3	3.2	2.7	0.8
Industry	2.3	1.6	2.9	1.3
Other	1.9	0.9	2.5	1.7
Animals	1.9	2.7	1.4	2.0
Sirens/Horns	1.7	2.1	1.7	1.4
Passersby	0.9	0.6	1.3	0.6
Sonic Boom	0.8	0.3	1.4	0.3
Motorcycles	0.8	0.8	1.0	0.3
Trains	0.5	0.3	0.0	1.7

Although we dismissed the industry component as being inapplicable to Rancho Palos Verdes in this table, it should be noted that noise from the construction of new homes is definitely industry related. Unlike the single event noises the table includes, construction noises tend to be steady state noise. The operation of bulldozers, heavy trucks, and the non-rhythmic pounding of hammers present a continuous noise intrusion violating the peace, quiet, and serene nature of any community in Rancho Palos Verdes.

Such noise intrusions are generally dismissed as necessary and temporary, and they result in few complaints. However, once the General Plan and Zoning Ordinance are adopted and the moratorium is lifted, Rancho Palos Verdes may experience considerable construction of new homes. This increase in construction could make industry-related noise intrusions an on-going problem.

The City should take steps to minimize the noise impact these intrusions will make. Some methods to accomplish this would include: (1) Controlling hours of operation; (2) Designating the routes trucks and other construction-related vehicles are to use in traveling to and from the various project sites; and (3) In some areas, where several parcels are involved in close proximity to existing residents, temporary screening measures should be considered.

Solutions

Sound Attenuation

Mitigating the impact of noise takes five principal forms: insulation of houses and buildings along busy freeways and busy streets, screening highways with trees or walls, land use planning for property bordering on heavily traveled roads, use of easements, and adequate setbacks. Before dealing with applicability of each of these forms as they relate to noise controls in Rancho Palos Verdes, it would be well to discuss some basic characteristics of sound attenuation, since attenuation is the goal in all four forms.

The two functions most closely associated with sound attenuation are inhibiting transmission and the absorption of sounds' energy. By inhibiting the transmission of sounds' energy and/or absorbing sounds' energy at or near a material's surface, the volume of noise perceived is reduced. The reduction of perceived noise volumes by either or both functions is called attenuation. It should be noted that the materials used to achieve these functions are often mutually exclusive. Materials used to inhibit transmission are not good absorbers, and materials used for absorption are virtually useless in inhibiting sound energy transmission.

In inhibiting sound energy transmission, the more dense or massive the material, the less energy will be transmitted by and through the material. For absorption, the exact opposite is generally true. Most absorption materials are quite porous and, as such, they are able to trap and absorb sounds' energy within their air pockets. Absorption materials are generally useless unless they are used in conjunction with materials capable of inhibiting sounds' energy transmission.

As a simplified example of this relationship, the exterior walls of a house serve to inhibit the transmission of sound energy from exterior sources. As the sound energy strikes the exterior walls, much of it is reflected. This reduces the amount of sound energy transmitted from the source to the interior of the house, resulting in lower perceived noise volume. If sound absorbing materials are used with the more dense exterior walls, the result is both a reduction in sound energy transmission and in the absorption of the energy which manages to penetrate the wall. The end result is a greater attenuation of noise.

These same principles apply to noise that originates from within the home as well. In this case, absorption materials are used to reduce the decibel level within a room. A good example of this attenuation process is a suspended acoustical ceiling. Without the ceiling, noise which originates in the room strikes the walls and the sound energy is reflected back into the room and bounces around the walls, ceiling, and floor until it finally dissipates. This action is what causes an echo in an empty room, especially if there is no carpet on the floor.

With an acoustical ceiling, the sound energy pierces the acoustical ceiling and strikes the more massive ceiling. The sound energy is then reflected back toward the acoustical ceiling, where much of the energy is absorbed before it can re-enter the room. The result is a reduced perceived volume of noise.

Although these examples depict attenuation of sounds energy as it impacts the interior of a home or office building, these same acoustical principles apply to attenuation for the outdoor environment as well. In this instance, acoustics is the science of sound, including the generation, transmission, absorption, and effect of sound waves on sound energy.

Some cities focus their concerns toward noise attenuation as it relates to the interior of homes, offices and other buildings. In Rancho Palos Verdes, where we are blessed with large parcels of quiet and serene open spaces, we must widen our scope of noise attenuation by sharpening our efforts to preserve the calm, quiet, and peaceful nature that characterizes our present outdoor environment.

By using a combination of walls, trees, and shrubs of low height to screen major roadways (which do not obstruct scenic views), such as Hawthorne Boulevard, and high density nonresidential land usage, such as Golden Cove Center, the noise from these steady state noise generators would be attenuated by the inhibition and absorption of their sound energy.

Walls covered with, or used in conjunction with low height shrubs, can become attractive and highly functional noise attenuators. The walls reflect sound energy, inhibiting transmission, and the more porous shrubs will absorb the sound energy. The use of leafy trees along the roadways exercises these same acoustical principles, with the tree trunks, limbs, and branches inhibiting and the leaves absorbing sound energy.

The use of berms along the roadway should only happen with the most guarded concern. Berms are walls or mounds of dirt used as noise attenuators. In common use along freeways, berms are generally used to inhibit the transmission of traffic noise to homes, offices, or buildings adjacent to the highway. To this extent, berms are effective; however, this effectiveness is generally accomplished exclusively through the use of materials which inhibit sound energy transmission, but reflects the noise back downward and upward into the community. The ultimate result is an increase in the ambient noise level of the community.

In Rancho Palos Verdes, berms would have an additional negative impact in that they would direct the traffic noise upward. Given the topography of Rancho Palos Verdes, many homes are built above these roadways and would be the recipient of this reflected noise. There is also concern for preserving views from the roadway.

Noise Standards

Too often, permissible noise level limits are based on the maximum amount of noise that can be generated without eliciting complaints. Although it is useful to know what the community reaction would be to various noise levels, the standards that the City adopts should be geared toward achieving the lowest ambient noise level possible, without inhibiting the ability to hold private conversation at a reasonable distance.

For very practical reasons, permissible noise level limits should be developed in conjunction with a zoning ordinance, and they should contain a time of day component to compensate for the changes that occur in ambient noise level in the course of a 24 hour day. If Rancho Palos Verdes is to maintain its serene residential community, free of abusive sounds and unnecessary noise, it will have to adopt rather stringent noise controls.

Policies

It is the policy of the City to:

1 — Mitigate impacts generated by steady state noise intrusion (e.g., land strip buffers, landscaping, site design).

2 — Develop an ordinance to control noise.

3 — Regulate land use so that there is a minimal degree of noise impact on adjacent land uses.

4 — Contain through traffic to existing arterials and collectors so that local roads are not used as by-passes or short-cuts so as to minimize noise.

5 — Require residential uses in the 70 dB(A) location range to provide regulatory screening or some other noise inhibiting agent to ensure compliance with the noise ordinance.

6 — Control traffic flows of heavy construction vehicles en route to or from construction sites to minimize noise.

7 — Maintain current and up-to-date information on noise control measures, on both fixed point and vehicular noise sources.

8 — Require strict noise attenuation measures be taken in all multi-family residential units.

9 — Coordinate with all public agencies, especially our adjoining neighbors, who might wish to enter into a joint effort to study and/or control noise emissions.

10 — Review noise attenuation measures applicable to home, apartment, and office building construction, make appropriate proposals for the City zoning ordinance, and make appropriate recommendations for modifying the Los Angeles County Building Code.

11 — Encourage the State and Federal governments to actively control and reduce vehicle noise emissions.

12 — Encourage State law enforcement agencies such as the California Highway Patrol to vigorously enforce all laws which call for the control and/or reduction of noise emissions.

Visual Aspects of the Plan

This section deals with the preservation, restoration, and enhancement of significant visual aspects related to Rancho Palos Verdes. The material presented below is of a local nature and significance, and is not intended to present any specific corridor or combination of corridors for designation as State Scenic Highways. The associated visual aspects of the General Plan are denoted on the accompanying map, with a brief explanation of each aspect presented below. Visual aspects related to developments (residential, commercial, etc.) are addressed in their respective sections.

Types of Visual Aspects

Visual aspects are divided into two categories, views and vistas.

Views

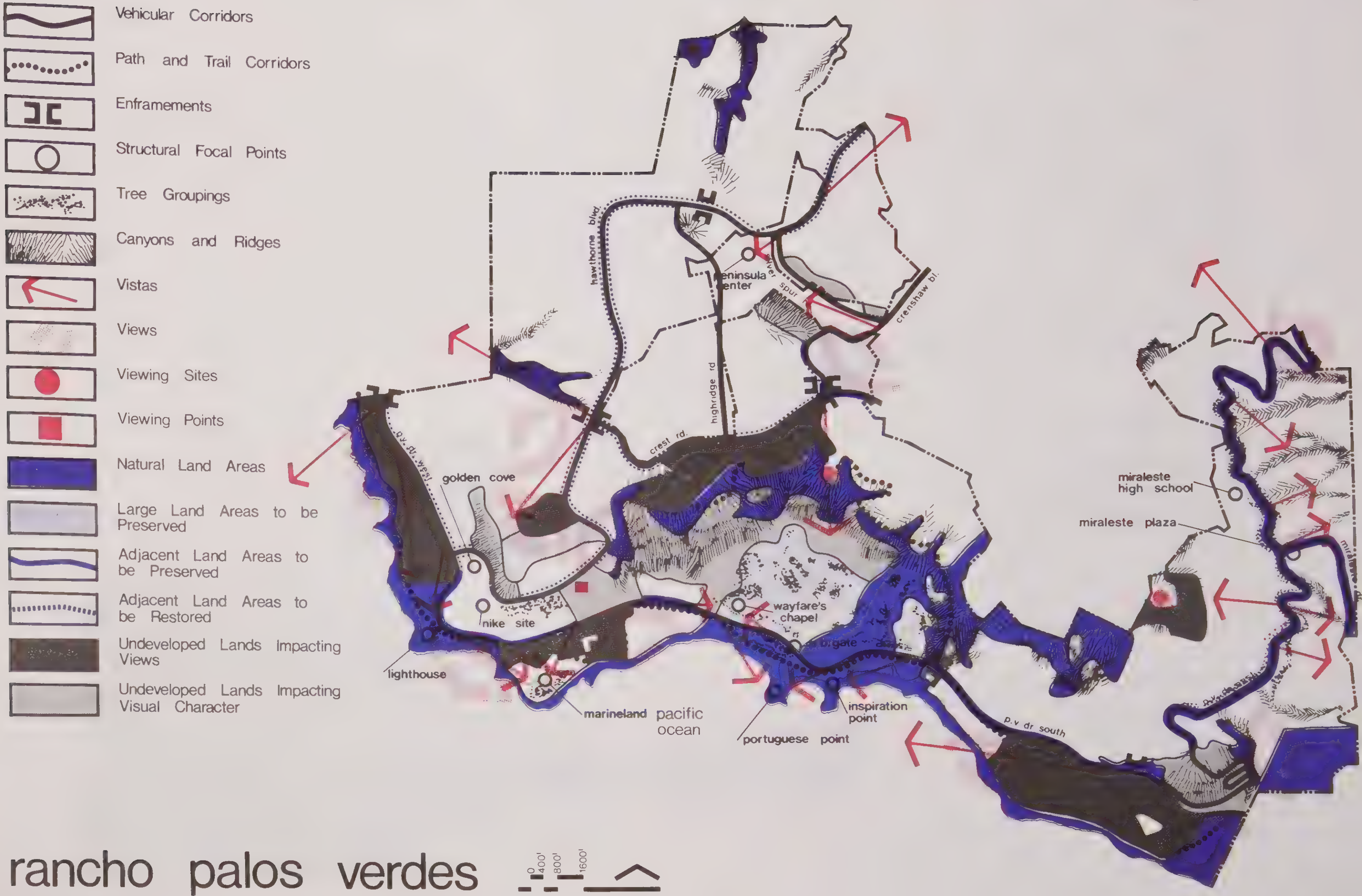
A view is a scene observed from a given vantage point. Views represent an unfocused visual aspect which extends to the horizon of a distant focal point (Catalina Island, rather than a lighthouse oriented focused view), and has an unlimited arc and depth. These views can be either continuous (as viewed from along a public corridor), or localized (as viewed from a specific site) in nature.

Vistas

A vista is a confined view, which is usually directed toward a terminal or dominant element or feature. A vista, unlike a view, may be created in its entirety and is therefore subject to close control through visual enframements. Each vista has, in simplest terms, a viewing station, an object or objects to be seen, and an intermediate ground. The three together make a unit and are usually conceived as an entity. If one or more of the elements already exist and are allowed to remain, then the others must, of course, be designed in harmony.

visual aspects

figure 41



rancho palos verdes

Visual Accents

Views and vistas can be enhanced through various visual accents, with the latter being dramatically affected by the existence of one or more of these accent elements. These various visual accents can be grouped under the following categories.

Enframement

Enframements constrict or focus views (represented by topography, landscape, building masses, etc.) which in turn creates or enframes a contrast of vistas, both before and after passage through the visual enframement.

Significant Focal Points

Structural Focal Points

Major architectural elements tending to focus viewer attention from a variety of view locations along major corridors and from major public lands.

Natural Focal Points

Significant Tree Groupings (mass, linear)

Because of the random presence of mature tree groupings within the City, significant masses or lines of trees represent a generalized natural focal point of interest and set a theme for some areas of the community (Portuguese Bend area, Palos Verdes Drive East).

Major Canyons

These represent the location of additional vegetation, shadows, and other visual focal elements in the dominant topography of Rancho Palos Verdes.

Major Ridges

The complement to the canyon element of the topography, with the major ridge systems, spines, and spurs represents one of the most outstanding features of the Peninsula Area.

View Corridors

The visual character of a city or region affects how people relate either positively or negatively to an area. Primary visual impact is conveyed through the major circulation or path and trail networks within the City. It is along these routes that a majority of the residents and nonresidents view the City.

This section's focus on major vehicular, path and trail networks is not reflecting their importance over other visual corridors within Rancho Palos Verdes, but is merely an indication that these are the primary corridors which provide a visual interpretation to a majority of the populace.

Vehicular Corridors

Vehicular view corridors should take into account two elements, the visual quality of a corridor, and safety problems associated with visual distractions. The interruption created by vehicles slowing for view enjoyment introduces potential hazards and reflects possible lack of adequate vista points for enjoying a specific vista.

Path and Trail Corridors

Major paths and trails in the City primarily will run along bordering significant natural features (ridge route-coastal bluff). Therefore, visual impacts from existing/proposed developments along these routes occur mainly on one side, with minor occurrences on both. This condition generates concern over how developments appear from path and trail networks. Past tract developments on the Peninsula have been concerned with street side appearance. Incorporation of path and trail routes introduces a need for visual appearance considerations to occur on both street and path or trail frontages. Areas where both sides are fronted by development appear more structured in their visual treatment and could provide transitional areas prior to path or trail intruding into areas with large open vistas.

Adjacent Lands Impacting Corridors

Concern for the appearance of adjacent land areas which impact major corridors is reflected in the indication of areas that are to be preserved, restored, or enhanced.

Developed Areas to be Preserved

Areas along corridors which are of a significant visual appeal.

Developed Areas to be Restored

Many of the conditions in these areas, generated through land grading and County Street Design Standards, allowed visually negative site and road patterns to impact major corridors.

Undeveloped Areas to be Urbanized Which Impact the Visual Character of Corridor

The concern over these areas is how a proposed development will visually impact a corridor. Areas under this designation would not affect significant views or vistas, but could provide adjacent visual elements which either positively or negatively impact established visual corridors.

Undeveloped Areas to be Urbanized Which Impact Corridor Related Views

These critical concern areas will have the greatest effect on altering the imagery provided along major corridors. The chances for blocking, altering, and degrading existing significant views and vistas within the City could be at the mercy of potential developments.

Natural Areas

Major natural areas which will be preserved and viewed from corridors are indicated here. These natural features provide viewers with a feeling for the rural atmosphere in the City.

Viewing Areas

Public land areas which are either solely for use of viewing or contain site designed areas for this purpose were grouped under the following two categories.

Viewing Sites

Existing public site areas which, due to their physical locations on the Peninsula, provide a significant viewing vantage.

Viewing Points

Turnouts along vehicular corridors for the purpose of viewing.

Policies

It is the policy of the City to:

1 — Develop controls to preserve existing significant visual aspects from future disruption or degradation.

2 — Enhance views and vistas where appropriate through various visual accents.

3 — Preserve and enhance existing positive visual elements, while restoring those which are lacking in their present visual quality.

4 — Make a further study on the visual character of neighborhoods following the General Plan in order to assess visual elements on an individual neighborhood basis.

5 — Develop well located vista points to provide off-road areas where views may be enjoyed. These should have safe ingress and egress and be adequately posted.

6 — Develop and maintain, in conjunction with appropriate agencies, public access to paths and trail networks for the enjoyment of related views.

7 — Require developers, as developments are proposed within areas which impact the visual character of a corridor, to address treatments to be incorporated into their projects which enhance a corridor's imagery.

8 — Require developments within areas which will impact corridor-related views to fully analyze project impacts in relation to corridors, in order to mitigate their impact.

9 — Require developments which lie between natural areas to be maintained and viewing corridors to show how they intend to mitigate view disruption.

10 — Develop a program for the restoration of existing areas which negatively impact view corridors, through the urban design element (e.g., landscaping and undergrounding).

land use plan V

IT IS THE GOAL OF THE CITY OF RANCHO PALOS VERDES TO PROVIDE FOR LAND USES WHICH WILL BE SENSITIVE TO AND ENHANCE THE NATURAL ENVIRONMENT AND CHARACTER OF THE COMMUNITY, SUPPLY APPROPRIATE FACILITIES TO SERVE RESIDENTS AND VISITORS, PROMOTE A RANGE OF HOUSING TYPES, PROMOTE FISCAL BALANCE, AND PROTECT THE GENERAL HEALTH, SAFETY, AND WELFARE OF THE COMMUNITY.

description

The Land Use Plan for the City is a composite of the other elements of the General Plan. The determination of appropriate land uses is derived from the natural environmental, socio/cultural, and urban environmental constraints and opportunities analyzed throughout the General Plan process. Those sections of the General Plan also contain land use policies.

Determinants of appropriate uses include the following:

- Natural environmental constraints: climate, geotechnical factors, hydrology, and biotic resources.

- Social and cultural resources and needs of the community and region.

- Existing and future adjacent development patterns, intensities, and structural types.

- Capacity of infrastructure, local and regional.

- Safety.

- Visual and noise consideration.

These determinants were overlayed for the various areas and analyzed for their relationships. The initial step was to determine which areas had characteristics which should preclude them from use for physical development at this time. The primary determinants were natural environmental constraints and safety. These areas are discussed in the Natural Environment Element and summarized in the Natural Environment/Hazard Areas section of this Plan.

Where it was determined that there were no constraints severe enough to preclude development, areas were then analyzed for appropriate uses, based on all determinants, and controls which might be necessary to preserve and/or enhance environmentally sensitive areas. Descriptions of each use and residential density based on the determinants follow, also the concepts of overlay control districts and specific plan areas. Various other implementation techniques may be used by the City, including, but not limited to those described in the fiscal element.

Natural Environment / Hazard Areas

Natural environment/hazard areas to be maintained encompass approximately 1245 acres of land. These areas possess extreme physical constraints and will be maintained in open space at this time, with very light intensity uses permitted such as agriculture and recreational activities, for the protection of public health, safety, and welfare. The constraints include: active landslide, sea cliff erosion hazard, and extreme slope of 35 percent and greater. These relate directly back to the analysis and policies in the Natural Environment Element in the section on areas for consideration of public health and safety.

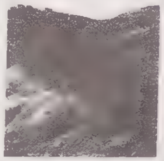
The Natural Environment/Hazard includes a section of existing residences, part of the Portuguese Bend community, on the active slide. This Plan recognizes these existing residences, in a density range of 1-2 d.u./acre, overlayed with the Natural Environment/Hazard designation. The criteria and policies to regulate this area have been stated in the Natural Environment Element, and include the following: (1) Existing uses and structures may be continued, transferred, sold, maintained, and restored; (2) No further development involving any human occupancy should be allowed; and (3) Construction of any new permanent structures be prohibited. If this area is stabilized by some natural or man-induced forces, the designation would be reviewed.

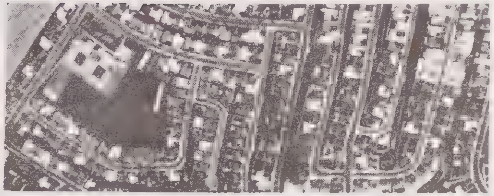
Urban Land Areas

Urban activity areas encompass the majority of the land uses, 6,712 acres.

Residential

Residential activities are the major use, with existing and proposed uses encompassing approximately 5,471 acres (69.5% of the total land area). 1,716 acres are proposed for new residential use. The predominance of residential use is based on several factors: the ability of residential activity to produce low environmental stress, the geographic location of the community with no major transportation facilities, lack of market potential for any major commercial, and need for support facilities only to meet the community's demand.





Densities

1 Dwelling Unit per 10 to 20 Acres

The Plan does not designate this density at present; however, in the future it may be used for preservation of agriculture and/or areas of critical concern. It would have extremely low environmental impacts.

1 Dwelling Unit per 5 acres

Land designated in this density possesses or is immediately adjacent to sensitive plant or animal habitats, and development could have a direct effect on these and the watershed of canyon habitats. Such land generally has slopes of 25 to 35%. It is anticipated that residences could be clustered in the most buildable sections of such lands, extending existing deadend streets, and providing development types consistent with the adjacent neighborhoods, while preserving the most sensitive areas of the canyons. It would serve to mitigate environmental impacts.

1 Dwelling Unit per acre

Vacant land designated in this density is of two types: (1) Areas identified in the Natural Environment Element having high slopes, wildlife habitats, natural vegetation, canyons within the general area, some ancient landslide, plus some immediately adjacent areas, included for continuity. This density would tend to promote development which would have low environmental stress and be so designed under the use of overlay control districts that the physical and social impacts could be minimized. (2) Areas in the coastal region not yet committed to urban use and within the region designated for a Specific Plan District (which is further described later in this section).

1 to 2 Dwelling Units per Acre

Vacant land designated in this density range has low and moderate physical constraints, and social constraints, such as public views and vistas, which at this density can be controlled through subdivision design. This density is compatible with the Peninsula environment and with adjacent existing densities and/or a reasonable transition between lower and higher densities. The amount of stress to the environment can be further reduced depending on the development and structural techniques used.

2 to 4 Dwelling Units per Acre

Vacant land designated in this density range has low and moderate physical and social constraints and the density is compatible with the adjacent existing and future densities. Innovative development techniques can reduce the environmental impacts.

4 to 6 Dwelling Units per Acre

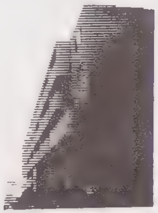
Vacant land designated in this density range has generally low physical constraints but much has high social constraints by reason of its coastal location (and this is included in a Specific Plan designation for further analysis). This density is proposed in several areas where existing higher densities have created severe adverse impacts and new development must be of a moderate density to mitigate the situation. The areas are large enough in most cases to allow for viable self-contained development types, such as townhouse clusters. Environmental impacts are increased.

6 to 12 Dwelling Units per Acre

Much the same determinants exist for the land designated in this category as that in the 4 to 6 dwelling units per acre (above), but the vacant sites are small and almost completely surrounded by existing high density uses. The need for mitigation is the same, but the feasibility of a more moderate density development less. Environmental impacts are likely to be high.

12 to 22 Dwelling Units per Acre

No vacant land is designated in this density range. It is a reflection of an area with existing high density residential uses. No new development is proposed due to potential extreme environmental impacts.



Commercial

Commercial uses in particular locations are covered thoroughly in the Urban Environment Element. The Land Use Plan specifically designates 65 acres for new commercial use, plus the potential of an additional neighborhood-scale commercial center in the southeastern section of the City to be analyzed as part of the Specific Plan District. Commercial activities would comprise 1.7% of the total land area, with most of a commercial/recreational type. While this is a very small amount of commercial use, it is based on the existence of major commercial facilities in neighboring cities and the need to preserve the character of the Peninsula.

Commercial uses tend to have environmental impacts unless small in scale and very carefully designed.

Several small existing commercial areas are not designated for commercial use in the Plan. These are scattered, poorly located, and do not contribute to good land use planning. It is proposed that these activities be made non-conforming and would continue until their economic life is completed.

Institutional

Institutional uses are described in the Urban Environment Element. They include public, educational, health, religious, and cultural activities. Recreational activities are generally compatible with institutional uses and are often part of such uses.

The major new area designated for institutional use, the Crestridge/Indian Peak area, has generally moderate physical constraints and is centrally located in the Peninsula. Institutional uses exist in the area, and the intent is to provide for a complex of future such uses, rather than allowing them to scatter throughout the community, where they are sometimes incompatible with other uses.

Another major area is the Nike Site, which is proposed for a civic center and recreation area.

Environmental impacts must be mitigated through proper design.

Recreational

Recreational uses designated on the Land Use Plan are those areas already held by public agencies and developed or proposed for development for active or passive recreational activity. As stated in the Urban Environment Element, additional recreational land may be designated after more specific study is made of subcommunity needs and, as new development creates additional demand, new development will be required to provide land and/or fees to meet its share of that demand.

Environmental impacts should be low.

Agricultural

One area is designated for agricultural use. It is in the active slide area, which would preclude any but low intensity, non-structural use. It therefore, appears to be feasible to continue this use.

Agriculture is further discussed in the Urban Environment Element. All areas presently in agricultural use are encouraged to remain.

Positive environmental results would be expected.

Utility

This designates existing public utility uses and facilities. Some small facilities are not indicated because they are too specific for the General Plan. The details of utility infrastructure and potential environmental impacts are described in the Urban Environment Element.

Population Projections

The Land Use Plan designates 1,716 acres for new residential development. In addition to this acreage, there are many potential "infill areas," i.e., areas where there are larger parcels which could be divided under the density designations of this Plan. It is difficult to project this potential "infill area" population, since some parcels may never be divided, either because the owners do not desire to do so or because such division does not meet the intent of the General Plan on grounds other than density. The best estimate at this time (prior to a detailed property and land use survey) is a maximum of 100 "infill" dwelling units and 350 persons.

It is very difficult to estimate existing dwelling units and population. The 1970 Census included other areas than what is now incorporated as Rancho Palos Verdes, and may not have been completely accurate. In addition, it was not feasible to get an accurate count of building and occupancy permits issued between the Census and the date of incorporation without sorting through the individual address files of the Building and Safety Division. Beyond these difficulties, different estimating agencies use different methods. Some project on building permits issued; some on units completed. They also categorize types of units differently between single family and multi-family.

The method used for estimates is the following: (1) the base is the County estimate for January 1974; (2) approximately 550 multi-family units were under construction at that time and added to the base; (3) approximately 90 single family units were under construction or have been issued permits since January 1974; and (4) the unit type was re-distributed based on a factual count of multi-family. The following table reflects this methodology.

	January 1974	Added* January to May, 1975	Total	Adjusted Total
Single-family	8,962	91	9,053	8,873
Multi-family	1,990	557	2,540	2,727
TOTAL:	10,952	648	11,593	11,600

*and under construction
**adjusted to reflect factual unit type

The population estimate for January, 1974 was 39,887. Using family sizes of 3.7 persons per single-family dwelling unit and 2.0 persons per multi-family dwelling unit, the additional units have added 1,811 persons. This makes a total population estimate of 41,700 for May, 1975.

Based on the projected population for the density designations of the Plan, including the "infill" areas, plus the estimate of base population, including the difficulties of estimating family size, it is appropriate to project a range of 8,000-9,000 additional population and a total capacity population of 49,700-50,700.

The projected maximum capacity population of the Peninsula, based on projections of the cities and unincorporated area, is approximately 93,500.

Rancho Palos Verdes	50,700
Palos Verdes Estates	18,600
Rolling Hills	3,900
Rolling Hills Estates	10,220
Unincorporated*	10,000
TOTAL:	93,420

*Including Western Avenue area

The County estimate for its entire Statistical Area No. 23, which includes the four cities, unincorporated area, Lomita, and part of Torrance is 195,244 as of January 1974, and a projection to 1990 of 205,000. This is a projected increase of less than 10,000 persons. If this projection is accurate, the projection for Rancho Palos Verdes may be quite high, at least for 1990 as a capacity year, since the other three Peninsula cities are projecting almost 9,000 additional by that time and Lomita is projecting 5,000-6,000. Assuming the County projection is accurate, the various cities are allowing more housing than will be needed for the projected population by 1990.

TABLE 13

CAPACITY RESIDENTIAL ACREAGE BY DENSITY 1980

Density Range	Developed (acres)	Proposed (acres)	Total (acres)	Percent Total Residential
1 d.u./acre	0	80	80	1.5
<1d.u./acre	115	1205	1320	24.0
≤1-2 d.u./acre	1262	297	1559	28.4
2-4 d.u./acre	2208	84	2292	41.7
4-6 d.u./acre	44	6	50	0.9
6-12 d.u./acre	135	14	149	2.7
12-22 d.u./acre	40	0	40	0.7
TOTAL	3804	1686	5490	99.9

TABLE 14

CAPACITY RESIDENTIAL DWELLING UNITS BY TYPE 1980

	Existing (d.u.)	Existing (%)	Proposed (d.u.)	Proposed (%)	Total (d.u.)	Total (%)
Single-Family	9347	76	2087	91.1	11434	78.5
Multi-Family	2934	24	203	8.9	3137	21.5
TOTAL	12281	100	2290	100	14571	100

*and under construction

**For the purposes of this Table only, multi-family is defined as more than 6 d.u./acre, regardless of type of ownership.

TABLE 15

LAND USE ACREAGE 1980

	Developed Acreage	Undeveloped Acreage	Total Acreage
Natural Enviroment/ Hazard Area			1245
Urban Land Areas:			
Residential	3804	1686	5490
Commercial	85	65	150
Institutional	269	66	335
Recreational	220	400	620
Utility	32		32
TOTAL	4410	2217	7872

TABLE 16

PROJECTED NEW RESIDENTIAL UNITS

Density Ranges	Total Acreage	*Undeveloped Acreage	Units on *Committed Land plus Units generated (at top of range) on Uncommitted Land				
			Committed	+	Potential	=	Potential
d.u./5 acre	80	80	0	+	15	=	15
1 d.u./acre	1320	1205	204	+	1001	=	1205
1-2 d.u./acre	1559	297	312	+	271	=	583
2-4 d.u./acre	2292	84	184	+	100	=	284
4-6 d.u./acre	50	6	10	+	24	=	34
6-12 d.u./acre	149	14	25	+	144	=	169
12-22 d.u./acre	40	0					0
TOTAL	5490	1686	735	+	1555	=	2290

*Undeveloped Acreage=acreage without units as of April 1, 1980, census date.

*Committed=tentative or final subdivision designating future lots, units, as of November 1982.

overlay control districts

Overlay Control Districts are incorporated into the General Plan in order to further reduce impacts that could be induced by proposed and existing developments in sensitive areas. Although the developable areas are not of an extremely critical condition which could endanger future residents (those areas possessing extreme conditions were placed in open space), it is concluded that major disruptive treatment of these land areas would alter features which form the City's character and Environment. These features include significant natural, urban, and socio/cultural characteristics. Control districts are placed on those land areas found, through analyses in the various elements (Natural Environment Element, Socio/Cultural Element, and Urban Environment Element), to possess special features, and have been incorporated for the following reasons:

- To guide developments in order to make wise and prudent use of Rancho Palos Verdes' natural environment, urban environment, and socio/cultural factors.

- To regulate the manner in which lands are urbanized and maintained in order to ensure a proper relationship between special features and urban uses.

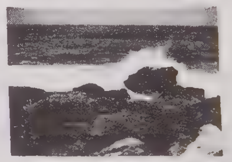
- To enhance watershed management, ground water recharge, and water quality to ensure a continuing supply of safe water

- To maintain and enhance land areas necessary for continued survival of valuable wildlife and vegetation habitats

- To maintain and promote the historic and archaeologic heritage of the community

- To preserve the continued availability of significant land areas which are used for the production of food and enjoyment of scenic beauty

The use of overlaying control districts on land areas is initiated so that more flexibility may be employed in mitigating site specific conditions. The proposed use of any one development technique, such as cluster development, is considered an ineffective way of dealing with all the varied site conditions within the City. This flexibility also allows for the City's housing supply to contain a variety of development treatments (conventional lot designs, cluster lot designs, etc.). The control districts are grouped into categories which reflect their respective elements, and detailed factors involving sub-breakdowns are presented.



Control Districts Applying to Natural Factors

A detailed factor-by-factor delineation is presented in the Natural Environment section of this report. Areas delineated within this control district shall develop under the following conditions:

– Site activities shall protect, conserve, and maintain land and water areas which possess, affect, or encompass significant natural factors (such as vegetation, wildlife, minerals, and soils) whose use or recovery can best be realized by restricting and regulating the use of land.

– Site activities shall protect the function of natural and existing water courses as a part of the system for surface water collection and dispersal.

– Site activities shall maintain the quality of surface and marine water as a valuable public resource.

– Site activities shall regulate the modification of water runoff characteristics.

– Site activities shall maintain the characteristics of land areas which contribute to ground water recharge, storm water storage, silt retention, and marine water quality.

– Site activities shall regulate use, development, and alteration of land in slope areas, so that essential natural characteristics, such as land form, vegetation and wildlife communities, ground water recharge, scenic qualities, and open space can be substantially maintained.

– Site activities shall preserve unique and significant geologic, biologic, and hydrologic features of public value.

– Site activities in hill areas shall use alternative approaches to conventional flatland construction practices.

Control Districts Applying to Socio/Cultural Factors

Land areas within this District shall preserve, protect, and maintain land and water areas and improvements which have significant historical, archaeological, or cultural importance to the public.

Control Districts Applying to Urban Activities

This control district is established in order to ensure that developments conform to the following:

– Site activities shall ensure the continuing availability of land particularly suited to food and flower production.

– Site activities shall preserve, protect, conserve, and maintain land and water areas which are of significant value to the public because of their recreational, aesthetic, and scenic qualities.

– Site activities shall achieve land use concentrations that are consistent with the natural characteristics of hill areas, such as slope, land form, vegetation, and scenic quality.

– Site activities shall protect predominant views of and from slope areas in order to maintain the identity, image, and environmental quality of the City.

specific plan districts

The City of Rancho Palos Verdes has established two specific plan districts, one within its coastal region and another inland. This procedure is provided for under Section 65450 of State Laws Relating to Conservation and Planning. The coastal region is defined by the City boundaries at both extremities and contains the land area from the mean high tide line to Palos Verdes Drives West and South. This district has been established for the following reasons:

- Further studies of earth sciences, hydrology, and biotic resources in this region are necessary in order to more accurately assess these factors as to their specific location. These studies shall determine uses in the coastal region in order to preserve and maintain resource areas, while restricting future developments from hazardous areas.

- The regional resource importance of this area requires precise and well-defined plans for both use and specific resource value of land areas.

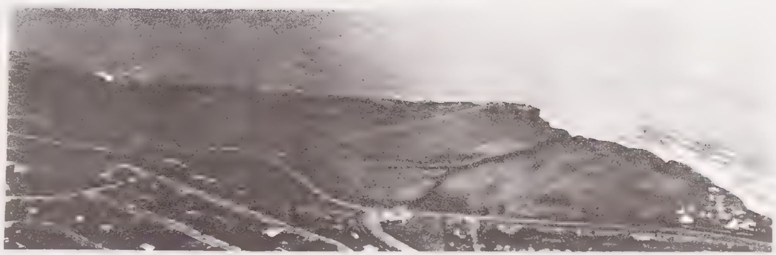
- Existing legislation over governmental agency powers is, at this time, undetermined and will be defined later. Due to this unsettled condition, it would be premature to allow intensive development in this region until the Coastal Commission powers and plans are more defined. It is not anticipated that final State action would necessarily be waited for.

The City will be initiating and receiving studies which supply additional input on proper treatment of the coastal region. Under State law, section 65451 defines specific plans as including:

". . . detailed regulations, programs and proposed legislation which shall be necessary or convenient for the systematic implementation of each element of the general plan listed in Section 65302 . . ."

Based on this specific plan, decisions may be reached which alter use or intensity of urban activities. Through these studies, information will be conveyed which will help to better define bluff regions and holding capacities in coastal areas. This specific plan will be completed as soon as practical.

The area bounded by Hawthorne Boulevard, Rancho Palos Verdes Park, and the Los Verdes Golf Course was submitted as a residential tract development in 1976. The City did not have time to create a specific plan for the area prior to the development request.



Other specific plans may also be initiated in the future and it is not necessary for them to be designated in the Plan for the City to do so.

alternatives to the plan

The planning process has included analysis of alternatives, both generalized land use approaches and more specific analyses of particular sites. The latter is included in the Urban Environment Element.

Also during the General Plan process, plans proposed by others were reviewed, including those proposed by State agencies, SCAG, Los Angeles County, South Coast Regional Coastal Commission, and landowners on the Peninsula.

There are two extremes in generalized land use approach alternatives: no more development, and very dense and intense development. The former alternative was eliminated as being economically infeasible. The latter was eliminated as being in complete opposition to the desire of the community to preserve the environment. The alternatives which were analyzed were "reasonable" alternatives in the language of the State E.I.R. Guidelines.

Although most general plans often discuss one or two very generalized city structure concepts, such as "strong core," "satellite centers," or "village concept," the City has attempted to take a more relevant and meaningful approach. Incorporated into the General Plan process was the methodology of creating reasonable alternatives which, although hypothetical, allowed for testing impacts — environmental, social, and fiscal — and assumptions.

This approach meets environmental impact report requirements and, equally important, provides the mechanism to obtain definitive community input on impact assessment and priorities, and narrows "desires" to "needs" and "feasibilities."

A first step in the General Plan process was the work of the General Plan Goals Committee. This Committee, comprised of 200 citizens, presented a report to the City Council containing goals and objectives for all portions of the General Plan. The purpose of this step was to get citizen input for what is wanted for the community, without necessarily dealing with practicalities. Because these were ideals, they sometimes conflicted or were inconsistent.

The next step was a study to create some reasonable alternative models which would allow for testing some of the major issues addressed in the Goals Report. This study derived three alternatives, plus one variation. These were primarily residential in nature, reflecting varying densities and housing mixes, and a set of textbook standards and assumptions. The densities used were generally low because it was apparent from the reasons for incorporation of the City, and reiterated in the Goals Report, that this was the desire of the community. The density and housing type mixes had a range which was wide enough to indicate differences. Each was tested for its environmental, community structure, and fiscal impacts, and its satisfaction of community goals.

The methodology used for determining the various degrees to which land uses should be controlled, restricted, or constrained because of the nature of the land was based on the Environmental Resource Inventory (prepared by EDAW, Inc.) previously completed as a planning study. This study categorized land into eight constraint ratings.

The four alternatives are described below (in all cases, 735 acres of extreme constraints area is assumed "zoned" for no development):

A – Preservation of a large amount of open space with residential development at very low densities. No building would occur in areas of high or extreme planning constraints, preserving an additional 1100 acres of the available vacant land in open space. It was assumed that 25% (275 acres) would be purchased, 50% (550 acres) retained by easement, and 25% (275 acres) zoned also as physical hazard. Total units: 1160, ranging from 1 to 6 d.u./acre.

B – Development in all areas except those with extreme planning constraints (735 acres). The density is higher than alternative A in all areas, so that the total number of dwelling units is nearly three times that of A. No acquisition of open space was assumed. Total units: 3230, ranging from 1 to 6 d.u./acre.

C – Development in all areas except those with extreme planning constraints (735 acres). Over 60% would be single family homes at 2 d.u./acre. No acquisition of open space was assumed. Total units: 5260, ranging from 2 to 22 d.u./acre.

D – Indicates the effects of providing the same number of units as C, while preserving as much open space as A. It was assumed that the 1100 acres would be acquired as follows: 25% (275 acres) zoned as hazard, 67% (735 acres) provided as open space as part of projects developed as clusters, and 8% (90 acres) acquired by City purchase.

All of the alternatives discussed above indicated a substantial amount of purchase, development, and maintenance of active recreation land, which would place a severe financial burden on the City.

The environmental impacts described in the analysis were generalized but did serve as measures of relative differences or similarities among the various alternatives. The study, based on the original assumptions, ranged the alternatives from least to most environmental impact – D, A, B, C.

Based on Council, staff, and citizen input received when these alternatives were presented, it was possible for the City to identify on a more specific basis environmental problems, and for the community to differentiate between "desires" and "needs," as associated with the various impact considerations. Of particular significance was the realization of the fiscal impact of acquisition, development, and maintenance of parkland In addition, the community was able to assess and understand the different types of impacts outlined.

It was determined that several of the standards and assumptions used in developing the alternatives did not properly weigh environmental considerations. The next step was to revise the standards and assumptions in several different ways, derive new alternatives, and test the impacts. The environmental impacts are indicated below. Major changes were made in the amount and type of recreational land and density ranges of units. (These are further discussed in the Fiscal Element).

	Alternative A	Alternative B	Alternative C	Alternative D
The Environmental Impact of the Proposed Action	Alternative A consisted of relatively low residential density ranges, from 1 dwelling unit per acre to 6 dwelling units per acre The Plan would generate roughly 1,160 residential units on 793 acres of land, leaving 1,835 acres for open space. Based on an earlier study of commercial activity (Economic Analysis of Rancho Palos Verdes) within the City, it was projected that all 4 alternatives would generate a commercial demand of 16 to 32 acres Due to plan A being the least intense plan, it can be assumed that related commercial demand would lie at the lower end of this range. The relatively low intensity of this project on a limited area would produce a low circulation impact, when compared with the other alternatives	Alternative B used basically the same density ranges as alternative A, but the amount of land area developed was 1,893 acres instead of 793 acres. The remaining 735 acres of undeveloped land reflected areas possessing extreme physical constraints. The plan generated 3,250 residential units. Impacts that would be associated with supportive facilities (associated land uses, circulation, infrastructure, etc.) would be roughly double that required by alternative A.	Alternative C is the most impactive of the four alternatives in relation to amount and intensity of resource utilization. This plan relied on three different density ranges, 2 d u./acre (the most extensively used of the three), 6 d.u./acre, and 22 d.u./acre. 1,893 acres were proposed for development. Since this alternative dispersed development over the maximum buildable area at an average density of 2.78 d.u./acre, it required the greatest amount of supportive facilities.	Alternative D utilized two residental density ranges, 6 units per acre and 22 units per acre. The former density range accounted for 4,560 of the 5,260 residential dwelling units generated. This alternative contained the same amount of residential units as C, but only devoted 793 acres of land for their development (instead of 1,893 acres). The plan would have required approximately 32 acres of commercial activity and 210 acres of local scale recreational facilities. Alternative D, as did alternative C, would have adverse impacts on the major circulation networks within the City, because the capacities would be exceeded. (This conclusion was reached through a circulation analysis which followed the Development Alternatives Report.)
Any Adverse Environmental Effects Which Cannot be Avoided if the Project is Implemented	Alternative A directly impacted an area of 793 acres of land. The present natural environment within this area would incur disruption from the associated development	The disruption of 1,893 acres and associated impacts that occur in the development of the land account for the adverse effects which cannot be completely eliminated, but could be reduced to an insignificant nature.	In theory, alternative C would generate the largest amount of adverse environmental effect because of its inherent characteristics which require the largest percentage of building coverage to be dispersed over 1,893 acres of vacant land. Although these impacts could be reduced, they would still be greater than those involved in the other alternatives (this is based on the same development approach being used for each alternative)	Alternative D contains approximately the same amount of development impacts as alternative C, but reduced the affected area by confining development to 793 acres. The direct adverse environmental effects were incurred on a more limited amount of land area but at a greater intensity than C.
Mitigation Measures Proposed to Minimize the Impact	The primary mitigating measure of this alternative is the generally low amount of acreage affected and the low building intensity of the plan. The impacted area was one of the lowest in both amount of acreage affected and the distribution of population intensity (6 persons per acre)	Primary mitigating measures are low intensity development taking place on land areas which are compatible to varying degrees with development.	Alternative C possessed the same general mitigating measures as the other alternatives (not building in unstable areas while dispersing building intensity to reflect the degree of environmental sensitivity on developable areas).	The major mitigating measure of this alternative was to confine proposed impacts to the least environmentally sensitive areas
The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity	Alternative A committed 793 acres of land to varying degrees of short-term uses while leaving 1,835 acres to remain undeveloped Of this 1,835 acres, 735 were considered to possess physical constraints that would present a danger to public health, safety, and welfare The remaining 1,100 acres of open space would remain undisturbed and, therefore, allowed to function as a natural ecosystem	Alternative B maintained 735 acres of vacant land in order to ensure that land which was unsuitable for development (due to possessing extreme physical constraints) would not be altered. Building intensity was varied on developable land to reflect the degree of environmental sensitivity of a given area (this approach was consistent for all of the alternatives)	As typical of the other alternatives, plan C promoted the maintenance of major natural environments while controlling growth on land capable of supporting it	Same as alternative A, but with greater intensity.
Any Irreversable Environmental Changes Which Would be Involved in the Proposed Action Should it be Implemented	The irreversible impact of the plan would occur primarily in the alteration and development of presently vacant lands Although this area is subject to irreversible environmental change, the plan in its approach tried to assess where this alteration would be least disruptive to the environment	The disruption of 1,893 acres of extensively natural environment represents the prime irreversible environmental change which would be incurred through the implementation of alternative B	The plan would place a greater amount of irreversible environmental changes on the same given area as alternative B, by generating a larger number of dwelling units (5,260 dwelling units instead of 3,203 dwelling units)	Alternative D primarily places direct irreversible changes in the 793 acres of proposed developed land. Associated circulation impacts generated by new development would severely impact major street networks which serve the Peninsula
Growth-Inducing Impacts of the Proposed Action	By this plan being the most limiting in residential growth of the four alternatives, it therefore required the least amount of supportive land uses (commercial, institutional, etc.). The plan in its low intensity approach possessed the possibility of requiring supportive infrastructure networks which were of a lesser efficiency than alternatives C and D	The growth-inducing impact of the plan is the amount of new dwelling units (3,230) and population projected (11,100)	The growth-inducing impacts of the plan lie in the 5,260 new dwelling units and the projected induced population of 17,220	The growth-inducing impacts of the plan lie in the 5,260 new dwelling units and the projected population of 15,080

Based on this further refinement and analysis, it was appropriate to reject alternatives C and D based on environmental impact. The very lowest density alternative, A, as a maximum, was rejected as requiring too much control of growth, beyond what was required by the nature of the land. The Plan, as drafted, is somewhat of a hybrid, but included additional factors and land use determinants beyond what was possible in the hypothetical alternatives study.

fiscal element VI

IT SHALL BE A GOAL OF THE CITY TO HOLD THE PROPERTY TAX TO A MINIMUM AND TO CONTINUALLY EXPLORE AND ANALYZE THE ADVANTAGES AND DISADVANTAGES OF ALTERNATE OR NEW SOURCES OF REVENUE.

IT SHALL BE A GOAL OF THE CITY TO EXPLORE COOPERATIVE FINANCING STRATEGIES THAT MIGHT BE UNDERTAKEN IN ASSOCIATION WITH OTHER JURISDICTIONS.

IT SHALL BE A GOAL OF THE CITY TO TAKE MAXIMUM ADVANTAGE OF REGULATORY LEGISLATION TO OBTAIN CONTRIBUTIONS, DEDICATIONS AND RESERVATIONS (I.E., EASEMENTS).

IT SHALL BE A GOAL OF THE CITY TO ASCERTAIN THAT ALL REVENUES GENERATED BY GROWTH ARE SUFFICIENT TO COVER COSTS RELATED TO GROWTH.

IT SHALL BE A GOAL OF THE CITY TO THOROUGHLY EVALUATE CAPITAL ACQUISITION AND OPERATING EXPENDITURES AND THEIR IMPACTS BEFORE IMPLEMENTATION OF PROGRAMS.

introduction

The General Plan recommends, in Goal and Policy Statements, the proposed future of the City. The Plan does not designate expenditures nor does it commit the City to a specific course of action. It provides, instead, a proposed future direction for the City to pursue.

Plan implementation decisions as they are made will then affect the City's fiscal pattern. The rate of implementation of the objectives of the Plan will be influenced by the following factors:

— Available regulatory techniques;

— Available revenues and revenue sources;

— Ability to finance ongoing expenses associated with implementation;

— Variables beyond the City's control.

There are different approaches available to achieve each Plan policy or objective. The strategies are discussed under two headings: direct expenditures and regulatory.

A number of possible options exist under the heading "direct expenditure." The City has much flexibility in determining when costs will be incurred, by whom, and whether as public or private costs. The impacts of expenditure strategies can differ markedly, depending on the approach to financing chosen by the City.

Possible regulatory strategies include the use of traditional land use control techniques such as zoning, subdivision regulations, and specific plans. Newer techniques such as control zones and development rights transfer are additional possibilities.

Regulatory and expenditure strategies are closely interrelated. Direct City expenditure may not be required, however, there are indirect costs associated with regulatory approaches. Furthermore, the expense related to some regulatory approaches is transferred directly to the homeowner, either as higher initial purchase price or in the form of costs of compliance.

For each plan objective, the examination of implementation alternatives should include the following questions:

— Can the expenditure be justified as a city expenditure? If so, from what fund source (general fund, capital improvement fund) and over what time period?

— Are there outside sources of public funding available? (e.g., county, state, federal).

— Is it appropriate that the expenditures be financed privately or through small-area financing entities such as special assessment districts?

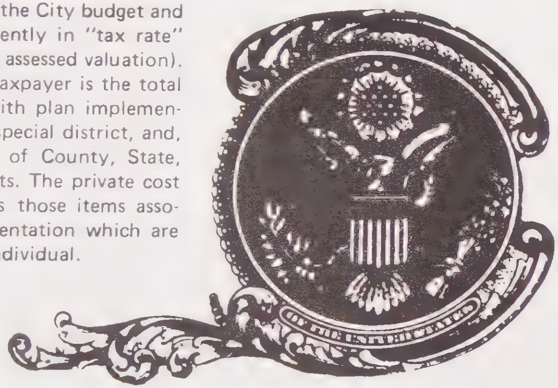
— Can the objective be achieved through regulation or the provision of incentives?

At any one point in time there are different methods available for achievement of a given objective. The availability and feasibility of implementation strategies will change over time — as Federal and State programs are

created and funded, as State law changes the planning powers available to local government, and as changes are made in State and Federal formulas for the financing of local government.

It is thus unrealistic to assume that the costs of implementation of the Plan can be finally and accurately determined at the outset. It is possible, however, to identify the range of implementation costs. Through careful planning and budgeting on a continuing basis, the City can minimize and redirect the costs of implementation.

This element of the Plan indicates how different Plan implementation proposals might create either City, other public, or private costs. The cost to the City is determined with reference to the City budget and is expressed most frequently in "tax rate" terms (cents per $100 of assessed valuation). The public cost to the taxpayer is the total tax burden associated with plan implementation, combining city, special district, and, less directly — portions of County, State, and Federal tax payments. The private cost to the taxpayer includes those items associated with Plan implementation which are paid for directly by the individual.



considerations in fiscal analysis

There are a number of items which must be taken into consideration when discussing fiscal analysis. This includes background information on variables affecting forecasts, the City's relationship to other taxing entities and the City's present operating profile. A review of these items follows.

Forcasting Variables

The City is faced with the need to know how much it is committed to spend in the future and how it should allocate resources to meet the expected demand for services. The City is attempting to forecast the fiscal impacts associated with implementation of the Plan. Forecasts are generally based upon the previous fiscal pattern of the government, together with presently known factors. Forecasting fiscal impact, however, is fraught with uncertainties and unknowns. Moveover, the further out the projections go the less precise and reliable they become. In most of this analysis it is necessary to assume that present governmental relationships and responsibilities will continue into the future, however, this appears to be a somewhat unrealistic assumption. The following questions illustrate the types of variables over which the City has little control:

- Will City responsibilities remain the same in the future?

- What changes in funding sources will be mandated?

- How will expectations for services change in the future?

Within the last five years, California municipalities have been seriously impacted by legislative actions of other governmental agencies. These actions have either imposed new responsibilities on cities without commensurate funding or have limited city funding options. State involvement in local government affairs can be expected to continue.

Relationship to Other Taxing Entities

The City's portion ($.1820 per $100 assessed valuation) of the combined property tax rate ($13-15.00 per $100 assessed valuation) is a relatively small portion of any individual property owner's total tax burden. The City tax rate is likely to remain low, as a percent of the total, because of legal and policy-dictated constraints.

Taxing entities other than the City may be classified in two categories, based on geographic coverage. Most entities (for example, county government, school, fire, water, flood control and sewer maintenance districts) cover areas larger than the City. Their tax rates and expenditure programs are, to varying degrees, beyond the direct control of the City. On the other hand, sub-districts such as lighting or recreation and park districts may cover only a portion of the City. The implementation of those goals and policies benefiting special groups could lead to increased sub-district activity.

Present Operating Profile of the City

At the present time, the City derives revenues from defined sources, and expends those revenues on a number of programs, facilities and services. The analysis of the costs of plan implementation calls for answers to three related questions:

- What does it cost to run the City now?

- What will it cost to maintain current effective service levels and to fund facility commitments that have already been made — through 1990, comparing present population with that projected in the Plan?

- What will it cost to provide the additional facilities and services proposed in the Plan?

The following description of the City's current revenue and expenditure profile will serve as background for all of these analyses.

The 1974-75 adopted budget provided for total expenditures of approximately $1.7 million and total revenues of approximately $2.4 million. Subsequent paragraphs describe in more detail the sources of revenue and categories of expenditure.

Revenue Sources

The City derives revenue from over twenty-five different sources. State subventions such as sales tax, motor vehicle in-lieu taxes, and gasoline tax, are the City's primary revenue source at this time. Total State subventions account for $1,308,900 or roughly 55% of total revenues ($2,381,384).

The City property tax accounts for 13.6% of total revenues. The present City property tax rate is $.1820 per $100 assessed valuation. This accounts for only 1.4% of the total median combined property tax rate of $13.3808. In the past, cities relied on the property tax more heavily than they do today to fund capital improvements and on-going programs. Reliance on the property tax, while appropriate in some cases, is now decreasing, both in California and nationwide. The inequities resulting from over-reliance on property taxation are becoming more generally recognized.

The retail sales tax contributes approximately $116,000 to the City's General Fund revenues. The City receives 1% of the 6% Sales Tax; a percentage fixed by State law.

Revenue Sharing provided by the federal government on a formula basis is available for ordinary and necessary capital expenditures, as well as parks and recreation. While the future status of the current Revenue Sharing program is unclear, the policy of returning a portion of Federal tax payments to local jurisdictions may be continued in one form or another in the future. The City now receives approximately $144,000 per year from this source.

Southern California Edison Company provides the City with a certain allocation of work effort each year in lieu of funding for the undergrounding of utilities in accordance with P.U.C. Regulations. The County of Los Angeles also can make a portion of its utility undergrounding funds available to cities.

At the present time, State funding for bikeway acquisition and development is available through an earmarking of a portion of the state gas tax. Funds are distributed to applying local jurisdictions through regional councils of government (i.e., SCAG).

Expenditure Categories

City budgets are divided into funds which match revenues with expenditures and insure that earmarked funds are spent for the purposes for which they were intended. An over-view of the City's major funds follows.

Operating General Fund

The General Fund is the City's major fund for receiving and allocating revenues for current operating expenses. Major expenditures include Sheriff's contract, $704,600; General Government, $409,164; and Parks and Recreation, $92,163. In the General Fund alone, 71% of the funds are devoted to contract expenditures. The major revenue source for the General Fund is the Motor Vehicle in Lieu Tax. It accounts for 41.5% of all General Fund revenues.

Highway and Transportation Fund

The Highway and Transportation Fund provides the major revenues for the construction and maintenance of the City's road and transportation networks. Subventions come from the State on a per capita basis; total estimated revenues are $504,500. Total expenditures in the budget are $324,566, with a reserve being established for major capital expenditures.

Environmental Excise Tax Fund

The City levies an Environmental Excise Tax of $500 per bedroom with a maximum of $1,000 for all new dwellings. These monies have specifically been earmarked for Park and Recreation purposes. A portion of the accumulated funds has been designated for the purchase of the Highland and Crestmont School Sites. Environmental Excise Tax revenues are directly related to the number of new units added to the City's housing stock. Revenues are generated as development takes place. Expenditures from this on a similar fund would take place gradually over the Plan implementation period, as the need for facilities occurs.

methodology for
determining fiscal analysis

The proposed approach for determining fiscal impact of the General Plan consists of three steps: projection of General Fund balances, analysis of alternative implementation techniques and, finally, determination of fiscal impacts on the City's General Fund. This three-step process is described below.

First, it is necessary to project the City's current General Fund revenues and expenditures to 1990, the assumed completion of the Plan implementation period. This will permit us to determine whether the City will have surpluses available from the General Fund to finance implementation of Plan proposals, or whether present operating commitments, when projected at current service levels, create potential deficits. If General Fund revenues are not sufficient to cover expenditures, projected deficits are presented in the form of equivalent property tax rates (although other revenue sources may be available).

In order to make these projections, it is necessary that certain assumptions be made to control the variables. These assumptions are:

– That effective levels of service provided will remain the same to 1990.

– All expenditures, costs and revenues are projected in 1974-75 dollars.

– Inflation is not considered for either revenues or expenditures. It is assumed that inflation will affect revenues and expenditures equally over the projection period.

– City responsibilities and revenue sources will remain the same to 1990.

– Assessed valuation is assumed to increase from a 1974-75 level of $178,750,000 to a projected 1990 General Plan level of $232,637,475, evenly over the 15-year period.

When the operating fund base has been established and surpluses or deficits are determined, the City can then examine funding and regulatory methods for implementation of the General Plan. These techniques and approaches are described and discussed in the remainder of this element.

The third part of the analysis involves assessment of the impact of any likely public expenditures on the City's General Fund. All implementation decisions, whether involving public financing or regulation, will create on-going costs of various kinds (acquisition, development, maintenance, operation).

present services and facilities – impacts

This section presents estimates of the probable costs of continuing to operate the City at present service levels through the year 1990. The estimates incorporate the assumptions previously outlined. These expenditure levels represent the commitment of resources required to operate and maintain the City, even before implementation of added programs and facilities called for in the General Plan. (For discussion of the fiscal impact of these added items see the following section of this element). These funds are not assumed to be available for the added facilities and services described in that section. Differences between these estimates and those prepared earlier in the Development Alternatives Report are also described in Alternatives Considered.

For comparison purposes only, a "base" and "General Plan" population, dwelling unit and assessed valuation figures were chosen. The Base assumes no additional units between now and 1990. The "General Plan" range assumes an additional 4750 dwelling units. The base and the General Plan range is as follows:

	Base	General Plan Range
Population	41,700	50,275
Dwelling Units	11,600	14,128
Assessed Value ($000)	$178,620	$232,637

The Plan cannot exactly indicate ultimate numbers of people or dwelling units. There will always be some variability with the numbers stated here. Thus, the assessed valuation figures for the base and General Plan range have been used to determine "likely tax rate on $100,000 home" in the examples used in previous sections.

As closer examination of the comparison tables in following sections will indicate, cost differences are more often caused by differences in service level (active vs. passive recreation area; level of sheriff's contracted service) than by differences in population or dwelling unit count.

The first subject of analysis is General Fund revenues and expenditures. The following outlines the General Fund revenues anticipated to be available at the final year of the projection period (1990).

POTENTIAL REVENUES AT FULL DEVELOPMENT
OPERATING-GENERAL FUND
Comparison of Base and General Plan Range
(Figures in Thousands)

Revenue	Projection Factors	Base	General Plan Range
Property Tax	$0.182 per $100 assessed valuation	$ 325.0	$ 423.4
Sales and Use Taxes	$650 per $1 million assessed valuation	116.1	151.2
Franchise Tax	$500 per $1 million assessed valuation	89.3	116.3
Real Property Transfer	$1.75 per unit	20.3	24.7
Business License Tax	20% of sales tax	23.2	30.2
Vehicle and Court Fines	$2.00 per capita	83.4	100.6
Interest Income	4% of fund revenues	46.2	58.7
Motor Vehicle In-Lieu	$9.35 per capita	389.9	470.0
Cigarette Tax	$1.80 per capita plus 12% of sales tax	89.0	108.6
Other State Subventions	$0.22 per capita	9.2	11.0
Environmental Service Fees	$200 per new unit	10.0[1]	33.7
Miscellaneous Revenues	0.5% of fund revenues	5.8	7.4
Total		$1,207.4	$1,536.1

[1] Based on 1974-75 budget rather than new units

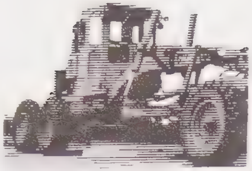
POTENTIAL EXPENDITURES AT FULL DEVELOPMENT
OPERATING-GENERAL FUND
Comparison of Base and General Plan Range
(Figures in Thousands)

Expenditure	Factor	Base	General Plan Range
Administration	$10 per capita	$ 417.0	$ 502.8
Environmental Services	As required	110.0	126.5
Public Works	Added staff	45.0	54.0
Sheriff	Expansion By ½ Unit over Current Level	702.2	807.8
Park & Open Space Maintenance	RPV Park $4,500/ac Balance 2,000/ac	45.0 92.0	45.0 92.0
Open Space Ease.	None		
Recreation	$2.00/cap	83.4	100.6
Misc.	0.4% of Exp	6.0	6.9
TOTAL	EXPENDITURE	$1,500.6	$1,735.5
TOTAL	REVENUES (10)	1,207.4	1,536.1
Deficit		293.2	199.4
Total Tax Rate Increase/ $100 AV		$ .163	$ .085
Change — Typical Tax Increase ($100,000 home)		$ 40.75	$ 21.43

This table illustrates the relatively small deficits that might be experienced in the Fund during the Plan implementation period. Then deficits are presented in terms of equivalent property tax increases of $.022 to .166 per $100 of assessed valuation — alternatively stated, a resulting tax increase of between $5.50 and $41.50 on a $100,000 home. This does not imply, by use of "added tax cost on $100,000 home" for purposes of illustration, that such a price is the mean, or desired mean, City house price. The concept of tax increase is more readily understood in the perspective of "dollars added to a tax bill," than in terms of "cents per $100 of assessed valuation." Those with homes worth more or less than $100,000 can easily ratio up or down from that dollar figure.

Capital expenditures to which the City is currently committed are analyzed next. As noted in the introductory description of the Highway and Transportation Fund, separate state taxes, such as gasoline tax, are returned to cities to finance construction of streets. While the developer is responsible for residential streets, major arterials are the City's responsibility. The following table summarizes the City's very healthy posture in street construction and maintenance.

Maintenance, although a continuing cost much like the general fund operating costs, is treated here because the pertinent tax revenues are specifically earmarked for street purposes. The projections assume that all construction identified as being required to support the 1990 City population is completed by 1990. The City has the option to delay construction programs, thereby avoiding even the slight deficit indicated in the base. In conclusion, it appears that sufficient



revenues will exist to finance existing service and facility commitments during the next fifteen years. The following sections analyze alternate means of financing added facilities and services proposed in the General Plan.

HIGHWAY MAINTENANCE AND CONSTRUCTION
FUNDS SUMMARY
Comparison of Base and General Plan Range
(Figures in Thousands)

		Base	Upper Level Range
Road Maintenance			
	Revenue	$ 280.7	371.9
	Exp.	280.7	301.8
	SURPLUS (Annual)	0	70.1
Road Construction			
	Revenue	$1,872.5	$3,806.1
	Expend.	2,812.0	3,730.0
	Surplus (15 year)	(939.5)	76.1
	(Annualized)	(62.6)	5.1
Net Annualized		(62.6)	75.2
Tax Rate		.035	–
Typical Tax ($100,000 home)		$ 8.75	–

proposed added services and facilities – impacts

The Goals Report and other sections of the General Plan identify an array of amenities, facilities, and services desired by Rancho Palos Verdes' citizens. The previous section described possible impacts based on the current level of service and facility commitment. In order to fully appreciate the cost impact of additional amenities, facilities, and services, a review of possibilities is in order. In each expenditure category discussed below, the range of per unit cost of acquisition, development and maintenance is addressed, followed by typical examples.

Regional Parks

The following regional parks are located within Rancho Palos Verdes:

Park	Use	Acreage
Friendship	Medium Activity	97
Shoreline	Open Space	53
Abalone Cove	Beach Activity	41
Los Verdes	Golf	165
Pt. Vicente	Fishing Access	11
NIKE (rifle range)	Beach Activity	28
*Portugese & Inspiration	View Point	50
	TOTAL	445 Acres

*Earmarked by the County for acquisition — currently in condemnation proceedings

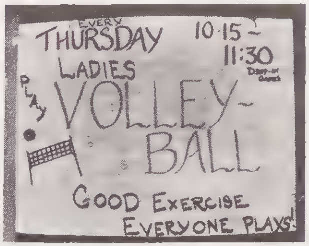
The City appears to have at least its fair share of County, region-serving park facilities. Even if the City population grows to 60,000, this amount of acreage provides 8 acres per 1000 persons — well above federal guidelines, of six acres per 1000 population. No direct City expenditures occur from the presence of these parks in the City. Indirect related costs (traffic control, road maintenance) and benefits (retail purchases) exist, but cannot be accurately estimated.

Upon incorporation, the City assumed the responsibility for Rancho Palos Verdes Park. Since that time, the City has initiated steps to purchase two surplus school sites, Crestmont and Highland. The City is also actively pursuing the acquisition of the NIKE site, of which about 16.8 acres will probably be used by various jurisdictions for civic purposes. The remaining 80.2 acres will probably be retained as passive parkland.

Local Parks

The following local parks exist, or will soon be created within the City.

Facility	Acres	Cost
Rancho Palos Verdes Park	11	0
Crestmont	29	
		$1,800,000*
Highland	17	
NIKE (upper)	4.5	0
NIKE (lower)	75.7	0
TOTAL	137.2	



*Funds are available from Environmental Excise Tax, Federal Revenue Sharing and accumulated surplus

For purposes of cost analysis, maintenance expenditures for the already-developed Rancho Palos Verdes Park are included in a previous table. Development and maintenance costs of the remaining acres are presented in the section. Costs are summarized in the following table.

Current plans for Highland are for minimal passive development estimated at about $5,000 per acre and annual maintenance at $2,000 per acre. Since it is estimated that a significant portion of the development costs of the Crestmont site will be borne by the using groups, the costs to the City for this active park are estimated to be equivalent to those for a passive park. For the same reasons, maintenance costs to the City are also projected at $2,000 per acre per year. The Nike Site is presently planned for passive open space, which would require minimal maintenance, such as weed control, at $25 per acre.

PARKS – FISCAL IMPACT

Park	Acquisition	Development (15 years)	Tax Rate Range	*Typical Tax Range
NIKE	0	$ 0		
Highland	Budgeted	$ 85,000		
Crestmont	Budgeted	145,000		
	Total	$230,000		
	Annualized	$ 15,300	$.005–.008	$1.36–$2.00

Park	Maintenance	Tax Rate Range	*Typical Tax Range
Nike	$ 2,000		
Highland	34,000		
Crestmont	58,000	$.033–.052	$8.25–13.00
Annual Total	$94,000		

*Based on a $100,000 house

The following table illustrates the differences in total cost between active and passive park area, on a per acre basis. These are assumed costs for comparison purposes only.

Even if acquisition cost per acre is the same, differences in development and maintenance cost combine to bring about a distinct difference in annual costs to the taxpayer for the two types of park. Passive park area is less expensive to develop, ($5000 per acre); it is also less expensive to maintain ($2000 per acre). The combined cost saving per acre translates into significant savings to the taxpayer, on either a tax rate or annual tax payment basis.

ADDITIONAL PARKS – COST PER ACRE

	Cost		Tax Rate	Typical Tax
Active				
Acquisition	$50,000			
Development	17,500			
Total*	$67,500		.024–.038	$6.00– 9.50
Maintenance (Annual)	4,500		.002–.003	.50– .75
		Total	.026–.041	$6.50–10.75
Passive Park				
Acquisition	$50,000			
Development	5,000			
Total*	$55,000		.026–.031	$5.00– 7.75
Maintenance (Annual)	2,000		.001–.0015	.25– .38
		Total	.021–.032	$5.25– 8.13

*This table assumes that total cost is paid in one year – acquisitions would most probably be paid for over a period of years, thereby reducing the tax rate and "typical tax" shown.

Table 17 shows the levels of savings that can be achieved if acquisition expense can be reduced through use of regulation such as Quimby Act, donation, or private financing.

TABLE 17

EXAMPLE OF PARK COSTS, ASSUMING
1/2 ACTIVE, 1/2 PASSIVE USE

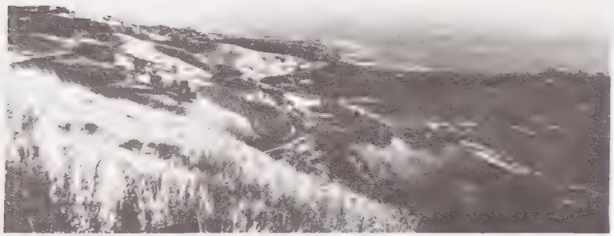
Type of Park	Acres	Acquisition**	Development* (annualized)	Maintenance*	Tax Rate	Typical Tax
Active	80–110	0	81,667–116,667	31,500–45,000		
Passive	80–110	0	10,667– 14,667	16,000–22,000		
Required Acquisition	24– 92	80,000–306,667				
Total annualized over 15 years		80,000–306,667	92,334–131,333	47,500–67,000		
Annualized Grand Total			219,834–505,000		$.078–.283	$19.50–$70.75
**Regulated Grand Total			139,834–198,333		.050–.110	12.50– 27.73

* Does not include parks in current inventory (10 acres).

** Securing land by regulation rather than purchase.

Open Space

It is expected that regulation will permit only low intensity use of natural land areas — those areas with high sloping terrain, landslide hazard, etc. If acquisition for public open space is desired and expenditure is required, the cost per acre for vacant land is estimated to be far lower than the cost of more readily-developable land. Maintenance expenditure for this open space land, will be low (on the order of $25.00 per acre per year — weed control, etc.) unless facilities are added.



Social Service Facilities

The General Plan recognizes the need for indoor and outdoor facilities for meetings and events of the many social, service, and cultural organizations. Construction of a large community meeting facility would involve a capital expenditure of between $200,000-$500,000. Some of this cost might be shared by the other cities. However, in any event, the major portion of this expense may have to be borne by the City. Maintenance costs cannot be estimated at this time, but are likely to be significant. User charges can partially offset this cost.

The feasibility of using building space now available on the NIKE site for meeting rooms and club rooms is a possibility. The capital costs of rehabilitation could be substantially less than the cost of a new facility. Several smaller meeting rooms can be provided for less than $10,000 each. Again, these facilities can be financed in whole or in part by the users.

The items above represent the most significant categories of added cost resulting from plan implementation. Other items proposed in the Plan, but not costed in detail in this element, include the following:

Shoreline Bluff

Although preservation may be accomplished through regulation, public use would require dedication or expenditure. Assuming the extreme case, of expenditure, and assuming a strip 100 feet wide, inland of the mean high tide line, could provide a strip about 50 feet wide along the bluff top. Such a strip would encompass about 100 acres. Improvements such as access, bikeways, restrooms are estimated to cost about $100,000 per mile. The following table identifies the probable impact.

Bikeways

If Bikeways are assumed to be provided on all select streets, this results in about 25 miles of bikeways. Federal funds are available on a formula basis. Assuming $4.50 per capita for 15 years would provide anywhere from $180,000 to $248,000. This allows from $7,200 to $9,920 per mile for acquisition and construction, therefore no tax is necessary. Maintenance would be a tax burden, however insufficient data is available to make realistic estimates.

Civic Center

A future Civic Center is a possible capital improvement on a portion of the NIKE site. Two possibilities are a new City Hall and a community center. Such facilities are projected to cost about $900,000. The probable tax rate range for a phased 15 year development is about $.021 to $.033 per hundred dollars assessed value. This represents from $5.25 to $8.25 per year for a $100,000 home. Again maintenance has not been included but would be an ongoing cost.

SHORELINE BLUFF
(in Thousands)

Acres	*Acquisition		Development	Tax Rate	***Typical Tax
100	5,000		750		
(Annualized 1/15)	333.3		50		
		Total	383.3	.136--.214	$40.00–53.50
Maintenance ($2,000/acre)	200			.072–.112	18.00- 28.00

* Assumes $50,000 per acre
** Equivalent to Passive Parks
*** Typical $100,000 Home

Other Amenities

The Goals Statements identify many other desirable amenities. They include archeological preservation, a trails system, roadside and median strip beautification, public restrooms at scenic vistas and stables. In the future other amenities will be identified. Although highly desirable, they will have a fiscal impact. That fiscal impact will have three elements just as the previous amenities have. Acquisition, development and the continuing maintenance will add to the cost of operating the City. The citizens and City Council must evaluate each on its merits and its costs.

In conclusion, it appears that the major proposals of the General Plan can be implemented, although with varying degrees of fiscal impact. It thus becomes important for the City to take all possible steps to mitigate and reduce these fiscal impacts. That subject is discussed in the following section.

alternatives considered

The Fiscal Element has analyzed strategies for and impacts of implementation of the preceding elements of the General Plan. Its findings thus differ in some respects from previous analyses, specifically, the Development Alternatives report which analyzed somewhat different plan alternatives, or plan alternatives presented with different implementation assumptions.

The major pertinent differences between this report's estimates and those of the Development Alternatives report are in two areas: cost of Sheriff's service, and assumptions regarding the type of park and recreation area to be provided.

The Development Alternatives report assumed Sheriff's service cost to vary directly with City population size, calculating costs on a per capita basis. This report acknowledges the existence of other factors, such as constant City size, low rate of increase in number of street miles, and low crime rate, which would limit the rate of increase in policing cost. This leads to the assumption that, even with the upper level range of population, only one additional car would be required.

Regarding park and open space area, the Development Alternatives report assumed an emphasis on more costly, fully developed active park areas. The analysis in this element assumes a balance (roughly half and half) between active and passive park and recreation area.

Comparison of the following tables illustrates the differences in fiscal impacts that result from changes in these assumptions. Furthermore, comparisons between these two tables illustrates that, contrary to previous belief, changes in development density do not influence cost nearly so much as the changes in cost assumptions identified above.

TABLE 18

Potential Expenditures at Full Development in 1990
Operating – General Fund
(Figures in Thousands)

Expenditure	Projection Factor (Population)	Alternative Futures				
		Base* (40,000)	A (43,970)	B (51,100)	C (57,220)	D (55,080)
Administration	$10 per capita	$ 400.0	$ 439.7	$ 511.0	$ 572.2	550.8
Environmental Services	As required to achieve city planning goals	110.0	118.8	134.0	166.5	137.4
Public Works	Added staff under full development	45.0	45.0	45.0	60.0	60.0
Sheriff	Appropriate numbers of units	702.2	768.8	821.9	1,013.6	1,013.6
Park and Open Space Maintenance	Park – $4,500/acre Open Space – $25/acre	720.0 1.2	792.0 6.9	918.0 1.2	1,030.5 1.2	990.0 3.5
Open Space Easements	$250 per acre	–	140.0	–	–	–
Recreation	$2.00 per capita	80.0	87.9	102.2	114.4	110.2
Miscellaneous	0.4 percent of budget expenditures	8.2	9.6	10.1	11.8	11.5
Total	Expenditure	$ 2,066.6	$ 2,408.7	$ 2,541.4	$ 2,970.2	$ 2,877.0
Total	Revenues (Table 10)	1,189.6	1,338.7	1,603.0	1,832.8	1,837.5
Deficit		877.0	1,070.0	938.4	1,137.4	1,039.5
Tax Rate Increase/ $100 A.V.		.491	.524	.383	.410	.370
Typical Tax ($100,000 home)		$ 122.75	$ 131.00	$ 96.25	$ 102.50	$ 92.50

Source: Economics Research Associates

*Base is defined as present population maintaining current effective service levels and commitments already made. Base population was estimated at 40,000 when this study was completed.

TABLE 19

Potential Expenditures at Full Development (in Thousands)
Operating — General Fund*

Expenditure	Factor	Base	A	B	C	D
Administration	$10/capita	$ 400.0	$ 439.7	$ 511.0	$ 572.2	$ 550.8
Environmental Services	As required	110.0	118.8	134.0	166.5	137.4
Public Works	Added staff	45.0	45.0	45.0	60.0	60.0
Sheriff	Expansion By One Unit over Current Level for Highest Pop. Alt-Ratio Between	702.2	777.4	810.5	820.3	877.8
Park & Open Space Maintenance	R.P.V. PARK $4,500/acre Balance $2,000/acre	45.0 92.0	45.0 92.0	45.0 92.0	45.0 92.0	45.0 92.0
Open Space Ease.	None					
Recreation Misc.	$2.00/cap 0.4% of Exp	80.0 5.9	87.9 6.4	102.2 7.0	114.4 7.5	110.2 7.5
TOTAL	EXPENDITURE	$1,480.1	$1,612.2	$1,746.7	$1,877.9	$1,880.7
TOTAL	REVENUES (10)	1,189.6	1,338.7	1,603.0	1,832.8	1,837.5
Deficit		290.5	273.5	143.7	45.1	43.2
Total Tax Rate Increase/$100 AV		$ .163	$ .134	$ .059	$ .016	$ .015
Typical Tax Increase ($100,000 home)		$ 40.75	$ 33.50	$ 14.75	$ 4.00	$ 3.75

*City Analysis

mitigating measures

The identified public costs of implementation of the General Plan can be reduced by a series of different strategies. These are classified for purposes of discussion in this section, under three separate headings: cost reduction, revenue increase, and regulatory strategies.

Cost Reductions

There are numerous ways by which the City may effect economies in the immediate and distant future. A continuing program of cost review and examination could have visible impact on costs to the citizen and to the community. The following is a review of some of the ways the City could effect economies. The listing bears no relation to priority, desirability, or magnitude of the economy to be realized. Rather, it is a cafeteria of approaches that are worthy of investigation. Many of the items in the following list describe the process of review and analysis that is being undertaken now, by City staff, on a continuing basis.

Review of Current Contracting Strategy

The City now pays for many services through a series of contracts with public and private agencies. Since contract costs and service levels may vary from year to year, it is important to continually examine alternatives to current contracting strategies. The currently contracted services are predominantly with county agencies, with a few minor services being provided by private organizations. Two alternative strategies are available to the City, for most services. The first is to consider a change from County contract to contract with public or private agencies. It may be possible through this strategy to realize reductions in cost of the service, specifically in the area of administrative costs. County administrative costs often appear to be high. Two services now performed by the County, street sweeping and traffic signal maintenance, are currently under consideration for transfer to private contractors in the near future. Other candidates for transfer might include: street maintenance, building and safety, and park maintenance. A second general strategy would be to consider a shift from County or private contract to in-house performance of a governmental function. Services that could be evaluated on this basis might include, but would not be limited to: Road Department Services; Building and Safety; Public Safety — Police and Fire; and Recreation.

Combinining and Consolidating of Services

This concept could be effected in various ways. The approach to be taken would depend upon such factors as cost effectiveness, benefits to be derived and the willingness of the involved agencies to participate. The three following examples illustrate the possibilities. First, it might be possible to combine duplicate services provided to citizens of all Peninsula cities. These might include: Road Department services, Animal Control, Refuse Collection, Public Safety — Police and Fire, and Parks and Recreation.

Second, cooperative agreements with the School District should be explored. City and School District offices are located near one another. There would appear to be some areas of mutual interest where economics might be realized. Some of the areas where joint solutions could be explored and evaluated are: parks and recreational areas; maintenance of buildings and grounds; and administrative services such as purchasing and data processing.

Finally, in the longer term, merger of two or more of the Peninsula cities might be contemplated. Such an approach might bring about significant economies. Efficiencies demonstrated by the combining of common services (see above) could operate as a catalyst towards the eventual merger of two or more of the cities.

Reduced Level of Services

As a last resort, costs can be reduced by reducing service levels. While it is recognized that this alternative is inconsistent with stated plan objectives, it is presented here in the interest of comprehensiveness.

Such economies could be effected in a number of ways. First, levels of in-house personnel and facilities could be reduced. Second, personnel and facilities could be held constant. Third, reductions in costs of contracted services might be achieved by: decreasing the level of contract service purchased; holding the contract at current dollar costs with a resultant decrease in scope due to inflation; or holding to the current scope and specifications making no allowances for increased growth.

Revenue Increase

It is the expressed goal of the City to hold the property tax to a minimum and to continually explore and develop alternative or new sources of revenue. In this section some of these potential supplementary revenue sources available to the City for Plan implementation are described and discussed.

The list of potential sources includes those available in 1975. Availability of outside funding changes continually, as legislative and budgeting decisions add and subtract programs and funding each year. In recent years, both the Federal and State governments have become more sensitive to the revenue plight of cities. As a result, new fund sources — both recurring and non-recurring — have been made available to cities; serious consideration is being given to increased sharing of revenues with cities. For the purpose of this discussion, revenue sources are categorized as either recurring (e.g., property tax, sales tax) or non-recurring (one-time allocations, such as funding from the 1974 State Bond Act).

Alternative Recurring Fund Sources

The City may attempt to derive added revenues from sales tax, and from fees and charges for various services rendered. The City may also explore new revenue sources that might be made available to it, were it a charter rather than a general law City. In the longer term, changes in state legislation could provide additional revenues from new or existing sources. Possibilities are discussed below.

Sales Tax

It is anticipated that there will be only minimal commercial retail facility additions (estimated 15% increase) during the next 15 years. However, retail sales, most of them taking place in existing facilities, can be expected to expand at a slightly more rapid rate than population. Thus, tax contribution from this revenue source, on a per capita basis, will rise slightly over time. The future contribution of retail sales tax to city revenue may be consciously limited as a matter of city policy.

Approximately 125 of the 150 acres designated commercial are in the Marineland area. Sixty-two acres of that site have been developed; plans are now pending for development of the remainder, and for a program of augmented activities. With the added development and program augmentation this facility might generate increased sales tax revenue. It should be noted that this "commercial recreation" facility draws from regional and national markets and does not compete with smaller shopping centers elsewhere in the City. Marineland's expansion, therefore, is likely to represent a net addition of retail dollars to the City rather than merely a reallocation of current spending.

Further increases in sales tax revenue may result from changes in state formulas. Sales tax revenue is now distributed to local jurisdictions based on the location of the sale. Efforts have been underway in California to revise this formula toward a population-based allocation. Such a formula change would provide more equitable treatment for cities such as Rancho Palos Verdes. To illustrate the magnitude of possible change: the City received roughly $116,000 in 1974 under the present "location of sale" formula. Had sales tax fund been distributed on a fully "per capita" basis, city receipts would have been over $1,000,000.

Increased Service Charges

The City is permitted to seek reimbursement for the costs of providing some services. The City's present fee structures reflect current costs. However, costs change rapidly, and fee structures should be revised to keep pace. In particular, increased service or user charges should be continually reviewed in such development-related areas as: Planning and zoning; building and safety; sub-division and engineering; miscellaneous services, such as mapping and duplication.

The imposition of user charges to cover costs of services in such areas as parks and recreation facility use should be considered. These may be appropriate in certain selected instances.

Other Possibilities

Franchise fees in such areas as rubbish collection and cable television offer additional opportunities for revenue increase. An admissions tax on commercial recreation facilities could be considered. Additional possible revenue sources would become available to the City, if it chose to change from general law to charter city status. As a charter city, Rancho Palos Verdes could levy a percentage tax on all public utilities, including gas, electric, water and sewers. These latter taxes, although not property taxes, are borne by every resident consumer.

Property Tax

It is possible to expand revenues derived from the property tax.

Revenue derived from the City portion of the tax rate ($0.1820 per $100 of assessed value) can increase even if the rate remains the same. This result would occur to the extent that assessed value of property in the City increases. Assessed value increases in

part due to new development and in part due to higher assessed value for existing property. In the latter case the tax burden on the property owner would thus increase in total dollar terms, but not in percentage of value terms.

Should it become necessary to increase the City property tax, State law limits the maximum tax rate to $1.00 per $100 of assessed value, without a tax override election.

Non-Recurring Fund Sources

Existing non-recurring fund sources include:

- Environmental Excise Tax
- General Revenue Sharing
- Housing and Community Development Act Funds
- Utility Undergrounding Funds
- Bikeways grants
- State Parks and Recreation Bond Act Funds

Continuing efforts should be made to obtain a fair share of these funds as long as they continue. Whether the City should seek to have present non-recurring fund sources (such as federal revenue sharing and Housing and Community Development Act funding) made permanent and recurring, must be evaluated in terms of the total City, State, and Federal tax load they imply.

Future non-recurring fund sources are, by their very nature, somewhat unpredictable as to timing, subject matter, and funding levels. Nevertheless, the City should monitor new programs as they emerge, and obtain its fair share.

Use of Regulatory Strategies

Land use regulation can often be a substitute for City expenditure as a method of achieving Plan objectives. This section describes the general theoretical base of regulation, and presents examples of strategies that might be used to implement specific Plan objectives. New court interpretations and legislative actions are making land use regulation an area of rapid change at the present time. Strategies will have to be evaluated carefully to determine their applicability in a given fact situation. California cities have a great deal of potential power to achieve general plan objectives through regulation of land use. However, plan making and ordinance preparation must be done fairly and equitably, providing sufficient opportunity for debate and discussion of the balance between private and public interest. Cities must go through a detailed and visible process of documenting the public purpose of the proposed regulations. The term "public purpose" is a broad one and can encompass not only the traditional "health, safety and welfare" items but also such additional items as efficiency of municipal expenditure, provision or protection of environmental amenities, open space or view resources.

In the following paragraphs, a brief overview is provided of some of the regulatory techniques that might be used to implement the General Plan. It should be noted that these regulatory techniques are by no means cost free. They can require larger staff with specific expertise. Some costs of administering provisions of complex plans and ordinances can be recovered from developers. Every effort should be made to maximize

recovery of these costs. Even though the developer passes on the cost to the buyer, the buyer has the benefit of stringent City regulation. Maintenance of the City's environmental factors data base may require ongoing, added expense for planning and administrative functions.

Specific Plans

California state planning law permits the use of an intermediate level of planning control, the "specific plan." It is more specific in application than the policy-oriented General Plan but less specific than zoning ordinances and subdivision regulations. The specific plan can indicate in detail such features as housing, recreation areas, educational facilities, public facilities, open space areas, areas deemed unbuildable. While most communities use specific plans selectively, for areas that are unique in terms of topography or possibly ownership, it is theoretically possible for all areas of a city to be covered by specific plans. (This is, in fact, the planning approach of the City of Livermore.)

In addition to specifying use types and locations, the specific plan may indicate appropriate timing and staging of development. The consistency requirement again applies: the provisions of the specific plan must be consistent with policies expressed in the General Plan. In many respects, the specific plan serves as a planned unit development designation, brought into being at the city's initiative, rather than on the initiative of the developer. This approach can be justified wherever the background data and the plan policies can be used to show the need for a specialized regulatory approach to implement the general objectives of the plan. In the case of Rancho Palos Verdes, it seems initially appropriate to consider the specific plan approach for areas within the coastal zone. However, broader use of the concept may be warranted, as well.

Coastal Specific Plan District

This Plan establishes a Specific Plan District within its coastal region. This procedure is provided for under Section 65450 of the State planning law. The region is defined by the City boundaries at both extremities and contains the land area from the mean high tide line to Palos Verdes Drives West and South. This district is being established for a number of reasons: further studies of earth sciences, hydrology, and biotic resources in this region are necessary in order to more accurately assess these factors as to their specific location. These studies shall determine the coastal region in order to preserve and maintain resource areas, while restricting future developments from hazardous areas. The regional resource importance of this area requires precise and well-defined plans for both use and specific resource value of land areas. Finally, governmental jurisdiction over the area currently is undetermined and will be defined later. Due to this unsettled condition, it would be premature to allow intensive development in this region until Coastal Commission powers and plans are more defined.

The City will be initiating and receiving studies which supply additional input on proper treatment of the coastal region. Based on this Specific Plan, decisions may be reached which alter use or intensity of urban activities. Through these studies, information will be conveyed which will help to better define bluff regions and holding capacities in coastal areas. This specific plan will be completed as soon as practical.

Zoning and Subdivision Regulations

The zoning ordinance and subdivision regulations are the traditional implementing mechanisms for achievement of general plan policies and objectives. Recent changes in State law have made possible more sensitive use and application of these traditional tools. Traditionally, zoning has addressed regulation of use density, use type, structure bulk and coverage. More recently, zoning has been used to protect the public from natural hazards such as flood, and geologic hazard, and to protect valuable public resources such as prime agricultural land, watershed and other water management lands, and scenic views. Possible zoning classifications for use in open space preservation are: large lot zoning; slope-density zoning; where lot size depends on slope of land; or planned unit development controls.

Subdivision ordinances may regulate the total design of a proposed development, designating amounts of park and open space, degree of landscaping, and other features. Local governments now have the power to (and may be required to) deny approval of subdivision maps, when it appears that approval would result in "substantial environmental damage." The information developed in the preparation of the General Plan, supplemented by that provided by applicants for development, provides the basis for determination of such adverse environmental impacts.

The Subdivision Map Act makes it possible for the City to require either dedication or reservation of land for certain types of public facilities — but only to the degree that the need for those facilities has been documented in general and specific plans. Thus, if a firm foundation of need for park and recreation facilities is laid in the recreation component of the General Plan, dedications can be required using the provisions of the Quimby Act. In some cases, reservation but not dedication of land can be required, also following a showing of need. In reservation situations, cost savings to the City are indirect rather than direct. Payment for the site must ultimately be made. Control of the use of the site years before actual development serves to reduce speculative pressure that might increase site value and purchase price. Furthermore, an opportunity to accumulate necessary funds over time for the purchase may be available.

Planned Unit Development

Planned unit development procedures add flexibility to the traditional zoning and subdivision controls. They permit individualized approaches to the development issues confronted on particular parcels. Ordinances often include incentive revisions. They are intended to encourage the incorporation of desired features by the developer. Use of solar energy, provision of added open space, and use of experimental alternate circulation systems (bikeways, equestrian trail systems) are but a few of the many possibilities.

While many advantages can be derived from the use of these procedures, their use must be closely monitored in each case to insure that permitted development is consistent with features of the given site and does not adversely affect adjacent areas of the community. If this implementation approach is used, the City must be prepared to staff the development approval and monitoring functions more heavily and with more skilled personnel than would be required to administer a more traditional set of land use controls.

Planned unit development controls generally work better if incentives are applied after a general reduction of permitted densities throughout the City or the sub-area in question. If normally permitted densities are not thus reduced, the effect of addition of bonuses is often to make possible more dense use of the land than contemplated by the Plan. Overloading of service and facility systems generally results. The need to provide incentives that would encourage a property owner to apply for use of PUD rather than traditional underlying controls may be removed in those cases where it is deemed advisable by the City to designate an area "mandatory PUD," i.e., City's option rather than developer's option. This designation requires a detailed justification of public purpose and may not be applicable in all cases where it is desired. Nevertheless, it is an alternative definitely worthy of further consideration. A comprehensive use of planned unit development controls can be used in Rancho Palos Verdes, in the form of overlay control districts. These are described in the following sections.

Overlay Control Districts

Overlay control districts could be created to further reduce impacts of development in sensitive areas. Although the developable areas are not of an extremely critical condition which could endanger future residents (those areas possessing extreme conditions were placed in Natural Environment/Hazard), it is concluded that major disruptive treatment of these land areas would alter features which form the City's character. These features include significant natural, urban, and socio/cultural characteristics. Control districts are placed on those land areas found, through analyses in the various elements (Natural Environment Element, Socio/Cultural Element, and Urban Environment Element), to possess special features.

Transfer of Development Rights

The technique of development rights transfer may be usable in certain areas of the City. In its simpler form, development rights transfer may be part of the planned unit development approach described above. For example, in a "clustering" solution, a property owner may be permitted to transfer buildable density from one section of his parcel to another in return for an agreement to hold permanently open the section from which density was transferred.

Further extensions should be considered. The next logical extension of the development rights transfer technique is to the case where two or more adjacent owners of property apply jointly for development approval. In that case, although the ownership of the parcels might be technically separate, the "project" could be treated as a unit, for regulatory purposes. This would make it possible for densities to be transferred from one area of the unit to another.

Few California communities have even begun to experiment with the more limited applications of development rights transfer described above. This technique offers the opportunity for relatively low cost achievement of many Plan objectives, if implementation details can be worked out. Its use should be approached cautiously to insure that proposed transfers do not overload natural or man-made systems in transferee areas.

Fiscal Policies

It is the policy of the City to:

1 — Consider the cost effectiveness and community benefits of all new major services and facilities.

2 — Require that wherever appropriate, special benefit services be paid for by the users in the form of specified fees or taxes.

3 — Work toward integration of common services among the four Peninsula cities for improved cost effectiveness.

4 — Consider the financial impacts of City decisions on other jurisdictions serving our residents.

5 — Encourage State legislative action to provide equitable distribution of tax revenues commensurate with the City's responsibilities.

6 — Obtain a fair share of revenues available from other government sources with due consideration being given to the impact on local control and obligations incurred.

7 — Continually evaluate the merits of contracting for services versus in-house staffing.

8 — Encourage private contributions and donations to the City as alternatives to public funding.

9 — Assess current administrative and enforcement capabilities before imposing new regulations, to insure that such new regulations can be effectively administered without undue costs.

10 — Utilize regulatory methods in a fair and equitable manner to reduce public costs.

11 — Consider the financial impact of City decisions as they affect costs other than taxes to our residents.

12 — Finance recurring expenditures from recurring revenues.

appendix VII

bibliography

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glossary

Active Landslide: An area presently undergoing downslope movement.

Active Recreation: Outdoor recreation activity requiring significant expenditure of energy, e.g., baseball, golf, hiking.

Activity Area: A given area within the City for which a particular land use is suited and is so designated.

Ambient Noise: The all-encompassing noise associated with a given environment, usually being a composite of sounds from many sources, near and far.

Amenities: An attractive or desirable feature of a place; anything that adds to ones comfort or convenience; pleasant qualities.

Assessment District: Districts in which the value of the property or structures within that district are arrived at through a common set of parameters.

Biotic Resources: All plant and animal organisms, both marine and terrestrial.

Bluff Setback: A boundary arrived at by the formula on page 20. Due to possible risks to human life or property, no development will be allowed to proceed without a detailed engineering and geology study which demonstrates site stability and suitability for development.

Buffer Zone: A zone or area which exhibits a dampening effect between two unlike areas; e.g., open space between commercial areas and residential areas.

Buildout: An area which has achieved its maximum development potential has achieved its buildout.

Cluster Development: A technique of grouping structures in a given area for the purpose of conserving and creating open space, lowering construction and materials costs, conserving energy, and creating a more secure environment.

Community Noise: Combination of steady state noise (distant traffic flow, neighbor's air conditioner) and the intermittent noises (planes flying overhead, local traffic flow, children yelling, etc.)

Decibel: A unit for measuring the relative loudness of sounds detectable by the human ear.

Density: A term used to represent the measurement of how intensely the land is developed (residential) and refers to the number of dwelling units (d.u.) which occupy a given area of land – generally per acre – and may be expressed as d.u./acre. Net density is the number of dwelling units on a given area exclusive of all public rights-of-way (streets, sidewalks, etc.), schools, parkland, and other non-residential uses. Gross density is the number of dwelling units per given area of land inclusive of all non-residential uses.

Dwelling Unit: A place of residence which contains bathing and cooking facilities for a single family.

Ecosystem: An environmental system in which the existence of that system is dependent on the interrelationship of the plant, animal, and bacterial communities within the system.

Environmental Impact Report (EIR): A document which discusses the impact that a particular development will have on the surrounding environment.

Extreme Slopes: Slopes of 35% and greater.

Fault: A plane or surface in earth materials along which failure has occurred and materials on opposite sides have moved relative to one another in response to the accumulation of stress in the rocks.

Gross Acreage: The total amount of land devoted to a development inclusive of public rights-of-way (streets, sidewalks, etc.), schools, and parks.

Housing Mix: The relationship of the various types of dwelling units (single family to multi-family) within a given area.

Hydrology: The science that deals with water movements, surface and subsurface distribution, and the cycle involving evaporation, precipitation, and flow to the sea.

Impact Controls: Measures taken to reduce or eliminate adverse impacts.

Infrastructure: The man-made support systems on which a community depends (e.g., water, sewerage, energy, communication, and transportation systems).

Load Induced: The associated effects on uses and support systems which would be generated through the development of a proposed activity (e.g., population, commercial activity, etc.).

Mitigation: An action taken which lessens the adverse or negative impacts that might occur as a result of another action.

Multi-family Residence: Two or more dwelling units located in a single structure.

National Historic Preservation Act of 1966: Calls for the preservation of sites, places and structures of national historic significance and sets criteria for entries into the National Register of Historic Places.

Natural Environment/Hazard Areas: Areas of extreme and hazardous physical characteristics (active landslide, sea cliff erosion, and/or slopes of 35% or greater) which are to be maintained as open space for the protection of public health, safety, and welfare. The undeveloped portions of these areas are to remain in their natural state, with only very low intensity uses permitted.

Net Acreage: The total amount of land devoted to a development exclusive of public rights-of-way (streets, sidewalks, etc.), schools and parkland.

Noise Contour: A line on passing through points where the same sound intensity level prevails. Contours form bands of varying width emanating from a noise source.

Overlay Control District: Areas within the City which possess special natural, social cultural, or urban features which warrant control of development.

Passive Recreation: Outdoor recreation activities that are non-structured in nature (picnicking, sightseeing, nature study areas, etc.).

Planned Unit Development (PUD): PUD refers to a development which has been completely planned by an architect, land planner, or developer which affords him arrangement flexibility not previously available. It implements planning for a diversification of dwelling types and aesthetic variety, while assuring that overall density standards will not be violated. Through various options or combinations of options (grid, cluster, etc.) open to the planner, more efficient use of the land can be made. Large common open areas, integrated land use designed to serve the needs of the residents, lower development costs per unit, and housing for a wider range of income levels are some of the amenities associated with Planned Unit Developments. These can all be achieved through a well designed PUD at a lower cost of construction per unit. Many PUD's are able to offer an amenity such as a lake or golf course as a focal point for the development.

Quimby Act: This act (also known as the Park and Land Dedication Act of 1965) allows the local government to impose a fee or require dedication of land or both, to be used for park or recreation purposes only, by an applicant requesting approval of a final subdivision map.

Seismic Safety: Safety measures taken to prevent loss of life and/or property due to natural or man made earthquakes and tremors.

Seismic Zone: Areas which have been divided and categorized according to the impacts which would occur as a result of an earthquake or earth tremor.

Single-family Residence: One dwelling unit which is located in a single structure.

Sound Attenuation: To lessen the negative impacts of sound by inhibiting the transmission of sound and/or absorbing the sound.

Sub-community Areas: Smaller divisions within the City based on common geographical features, location, or access by road system. Also referred to as neighborhood areas.

Subdivision Map Act: Gives local governments authority to regulate and control the design and improvement of subdivisions within their jurisdiction.

Topographic Conditions: Existing conditions on the land surface or a given region, including, but not limited to relief, water features (streams, rivers, lakes) and man made features (grading, etc.).

Transfer of Development Rights: (Development Transfer) This process can be used when a municipality designates an area for open space and prohibits development therein. The residential development potential is then transferred to another area or areas where development is feasible.

Landowners in the preserved areas will continue to own their land and may sell their rights to further development to other landowners or builders who wish to develop those areas in which development is feasible.

Under the system, a zoning district is established for preservation of open space in which all development is essentially prohibited. The residential development potential of the zoning district before its open space designation is calculated as follows: For each residential dwelling eliminated in a preservation district, a substituted dwelling is added to a developable district of the community. A development right is created for each dwelling eliminated in the preserved district and is distributed to the landowners. To construct dwellings in developable areas, a development right is necessary along with appropriate zoning.

A builder who proposes to construct at a higher density, based on the new capacity or density resulting from the establishment of the preserved area, must also purchase development rights to equal the increased density and at a price arrived at through the bargaining process of the market place. The continued value or marketability of development rights are insured by adequate incentive zoning in the developable areas.

Watersheas: Geographical boundaries of an area that are drained by a common river, stream or network of rivers and streams.

general plan requirements

The elements mandated by the State Government Code have been integrated into functional relationships in this Plan. The following list indicates the location by Element and section.

Mandated Element	Location in Plan
1. Land Use	Land Use Plan, pp. 193-210 Natural Environment Element, pp. 31-45 Urban Environment Element – Activity Areas, pp. 57-100 Infrastructure, pp. 101-138 Sensory, pp. 177-192
2. Circulation	Urban Environment Element – Infrastructure, pp. 115-138
3. Housing	Urban Environment Element – Activity Areas (Housing), pp. 57-78
4. Conservation	Natural Environment Element – Natural Environment Plan, pp. 5-45 Urban Environment Element – Infrastructure, pp. 101-114
5. Open Space	Natural Environment Element – Natural Environment Plan, pp. 5-45 Urban Environment Element – Activity Areas (Recreational), pp. 94-99 (Agricultural), pp. 99-100 Infrastructure, pp. 124-138 Sensory, pp. 188-192
6. Seismic Safety	Natural Environment Element – Natural Environment (Geotechnical Factors), pp. 11-20 Urban Environment Element – Safety, pp. 139-175
7. Noise	Urban Environment Element – Sensory (Noise), pp. 177-187
8. Scenic Highway	Urban Environment Element – Sensory, pp. 188-192
9. Safety	Urban Environment Element – Safety, pp. 139-175

e.i.r. requirements

Due to the long-range and policy nature of the General Plan, direct specific application of the requirements of an environmental impact report is not always practical. But because it is a purpose of the environmental impact report process to expose alternatives and impacts, and it is a function of the General Plan to analyze options and select best alternatives, it is appropriate to address the environmental impact report requirements within the Plan. The following summarizes the requirements and indicates the location, by Element and section, of the items required to be addressed.

1. Description of the Project

The project is a General Plan for the City of Rancho Palos Verdes. The Plan encompasses the 12.3 square miles within the City boundaries, indicated on Maps, in the beginning of this document.

The objective of the project is the adoption of a long-range comprehensive plan for physical development, including goals, objectives, policies, and proposals, which meets the requirements of the California Government Code.

A general description of the project's technical, economic, and environmental characteristics includes:

a. The technical characteristic is that the project is a guide to be used by decision-making bodies concerning the future development of the City.

b. The economic characteristic is that the project will provide for land use activities that promote a stable economic base and the tool for analyzing fiscal impacts of future decisions.

c. The environmental characteristic is that the project analyzes and balances environmental considerations with land use planning and reflects the unique environmental character of the City.

2. Environmental Setting

The City of Rancho Palos Verdes is part of the Los Angeles-Long Beach Metropolitan Area. While most of the Area is heavily urbanized, the City and the rest of the Palos Verdes Peninsula have been slower to develop and are primarily residential due to location and topography.

The City encompasses approximately 7,900 acres, with approximately 2,600 acres vacant. The majority of the 7-1/2 miles of coastline is vacant. The land is extremely sensitive environmentally, including steep slopes, landslides (both active and inactive), animal habitats, natural vegetation areas, many canyons, and ocean resources. The climate is Mediterranean in character, and the air quality good.

More specific description of the environmental setting is found in the following sections of the Plan:

INTRODUCTION, p. 1

NATURAL ENVIRONMENT ELEMENT

Natural Environment

Climate, p. 9

Air Quality, pp. 10-11

Geotechnical Factors, pp. 11-20

Biotic Resource, pp. 22-27

SOCIO/CULTURAL ELEMENT

Cultural Resources

Paleontological, Historical, and Archaeological Resources, pp. 47-49

Current Social, Service, and Cultural Organizations, p. 51

URBAN ENVIRONMENT ELEMENT

Activity Areas

Compatibility of Adjacent Activity Areas to Rancho Palos Verdes, pp. 57-58

Housing Activity, pp. 59-68

Commercial Activity, pp. 79-80

Industrial Activity, p. 85

Institutional Activity, pp. 86-88, 92

Recreational Activity, pp. 93-96

Agricultural Activity, p. 99

Infrastructure

Resource Systems, pp. 103-106

Disposal/Recovery Systems, pp. 108-110

Communication Systems, pp. 112-114

Transportation Systems, pp. 115-124

Safety

Hazards Inventory, pp. 139-165

Safety Programs, pp. 166-172

Sensory Environment

Noise, pp. 177, 182-184

Visual Aspects of the Plan, pp. 188-191

FISCAL ELEMENT

Considerations in Fiscal Analysis, pp. 214-215

3. Environmental Impact of the Proposed Action

The project is a positive approach to reducing environmental impacts. The intent is towards preserving environmental characteristics and responding to those physical features restricting development for the health, safety, and welfare of public. Without the Plan, a potential exists for unplanned use, degradation of resources, and resulting adverse environmental impact if policies are not developed to protect and manage resources, environmental character, and physical hazards.

Long-range impacts include the commitment of portions of the vacant land to urban use, while preserving other land in its natural state. The Plan proposes uses and intensities which are intended to have lesser adverse impact, while still allowing some development.

By its nature the project is an indirect impact, since it is only a plan and does not propose specific development. It is dependent upon numerous mechanisms and procedures for implementation. A major aspect of predevelopment procedures is the environmental impact review process that permits specific analysis of the impacts of specific development proposals.

More specific discussions of environmental impacts is found in the following sections of the Plan:

INTRODUCTION, p. 1

NATURAL ENVIRONMENT ELEMENT
- Natural Environment
  - Air Quality, pp. 10-11
  - Hydrology, pp. 20-22

URBAN ENVIRONMENT ELEMENT
- Activity Areas
  - Housing Activity — Induced Residential Activity Area, p. 75
  - Impact Controls, pp. 76-77
  - Commercial Activity — Load Induced, pp. 81-84
  - Institutional Activity — Educational Activity, pp. 89-91, 92
  - Recreational Activity — Additional Recreational Facilities, p. 96
- Infrastructure, pp. 101-102
  - Resource Systems, pp. 104-105, 107
  - Disposal/Recovery Systems, p. 109
  - Communication Systems, pp. 113-114
  - Transportation Systems, pp. 116, 122-124, 125
- Safety
  - Impacts, p. 174
- Sensory Environment
  - Noise — Projected Noise Growth, p. 182, Community Noise, pp. 183-185
  - Visual Aspects of the Plan — Adjacent Lands Impacting Corridors, p. 191

LAND USE PLAN
- Description, p. 193
  - Natural Environment/Hazard Areas, p. 194
  - Urban Land Uses, pp. 195-197
  - Population Projections, p. 198

FISCAL ELEMENT
- Present Services and Facilities — Impacts, pp. 219-222
- Proposed Added Services and Facilities — Impacts, pp. 223-230

4. Any Adverse Environmental Effects Which Cannot be Avoided if The Proposal is Implemented

No significant adverse environmental effects have been identified resulting from the Plan.

The conversion of vacant land to urban use and alteration of land forms will create potential adverse environmental effects. The Plan is intended to reduce these as much as possible. Other adverse impacts which cannot be avoided are those associated with natural forces such as earthquake, landslide, sea cliff erosion, or those regional problems such as air pollution.

More specific discussion of adverse environmental effects is found in the following sections of the Plan.

NATURAL ENVIRONMENT ELEMENT
- Natural Environment
  - Air Quality, p. 11
  - Geotechnical Factors, pp. 14-18
  - Hydrology, pp. 20-22
- Areas for Consideration of Public Health and Safety, pp. 31-32
- Areas for Preservation of Natural Resources, pp. 35-36

SOCIO/CULTURAL ELEMENT
- Cultural Resources
  - Paleontological, Historical, and Archaeological Resources, p. 49

URBAN ENVIRONMENT ELEMENT
- Activity Areas
  - Housing Activity, pp. 73-75
  - Commercial Activity, pp. 81-82
  - Recreational Activity, pp. 95-96
- Infrastructure, pp. 102-103
  - Resource Systems, pp. 104-107
  - Disposal/Recovery Systems, pp. 109-111
  - Communication Systems, pp. 113-114
  - Transportation Systems, pp. 116, 122-124, 126
- Safety
  - Hazards Inventory, pp. 142-165
  - Impacts, p. 174
- Sensory Environment
  - Noise, pp. 182-185
  - Visual Aspects of the Plan, p. 191

LAND USE PLAN
- Description
  - Natural Environment/Hazard Areas, p. 194
  - Urban Land Uses, pp. 195-197

5. Mitigation Measures Proposed to Minimize the Impact

In general terms, the project is a mitigation measure in itself. It proposes to protect and manage the natural environment of the City and, through the environmental analysis of specific development proposals, it is intended that specific mitigating measures would be required.

More specific discussion of mitigating measures (often contained in policy statements) is found in the following sections of the Plan:

6. Alternatives to the Proposed Action

In general terms, extreme alternatives to the project are (a) no plan, (b) a plan accommodating maximum development, (c) a more restrictive plan. No plan would be illegal under State law, and even if it were not, would place the City in the position of having no comprehensive long-range policy direction, which could lead to no control over development and degradation of the environment. A less restrictive plan, accommodating maximum growth and development, could result in over development and over utilization of environmental resources, producing numerous adverse impacts. A more restrictive plan could provide lessened adverse environmental impacts, but could increase social, legal, and economic impacts. These three alternatives are inconsistent with the goals of the City.

Part of the process of developing the Plan was a study to analyze several reasonable alternatives, and this study, with subsequent revisions and refinements, led to the Plan. This is discussed in the Land Use Plan, pp. 193-210

Additional specific discussion of alternatives is found in the following sections of the Plan:

LAND USE PLAN

Alternatives to the Plan, pp. 207-210

FISCAL ELEMENT

Alternatives Considered, pp. 231-233

7. The Relationship Between Local Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long Term Productivity

The cumulative and long term effects of the project are to maintain the natural environmental characteristics of the City, while providing for controlled development of land capable of supporting it. The methodology used provided for the analysis necessary to propose policies promoting a sound balance between economic development and environmental protection. The Plan promotes a stewardship role for the City to maintain and enhance the long term productivity of the environment as a regional asset which should not be lost to short term pressures.

Additional discussion is found in the following sections of the Plan:

INTRODUCTION, pp. 2-3

NATURAL ENVIRONMENT ELEMENT

Resource Classification, pp. 29-30

Areas for Consideration of Public Health and Safety, pp. 31-32

Areas for Preservation of Natural Resources, pp. 35-36

Natural Environment Element

Policies for Public Health/Safety Related to the Natural Environment, pp. 44-45

Overall Policies, p. 45

SOCIO/CULTURAL ELEMENT

Cultural Resources

Paleontological, Historical and Archaeological Resources — City's Options, pp. 49-50

Policies, p. 50

URBAN ENVIRONMENT ELEMENT

Activity Areas

Recreational Activity — Public Recreational Activity Areas, p. 94;

Passive Recreational Areas, p. 95; Additional Recreational Facilities, p. 98;

Policies, p. 99

Agricultural Activity, pp. 99-100

Sensory Environment

Visual Aspects of the Plan, pp. 188-192

Policies, p. 192

LAND USE PLAN

Description

Natural Environment/Hazard Areas, p. 94
Overlay Control Districts, pp. 203-204
Specific Plan Districts, pp. 205-206

FISCAL ELEMENT
Proposed Added Services and Facilities — Impacts, p. 223
Policies, pp. 241-242

8. Any Irreversible Environmental Changes Which Would be Involved in the Proposed Action Should it be Implemented

The irreversible environmental changes involved with the project would be the commitment of vacant land in its natural state to development for other uses. Although the Plan proposes the preservation of land with severe physical constraints and proposes mitigating measures to be taken with any development of other land, putting land to urban use would be an irreversible environmental change within the time frame of this Plan.

Additional discussion is in those sections which describe proposed urban uses:

INTRODUCTION, p. 3

NATURAL ENVIRONMENT ELEMENT
Natural Environment
Air Quality, p. 11
Hydrology, p. 22

URBAN ENVIRONMENT ELEMENT
Activity Areas
Housing Activity — Induced Residential Activity Area, p. 75
Commercial Activity — Load Induced, pp. 81-84
Institutional Activity — Educational Activity, pp. 87-91
Infrastructure, pp. 102-103
Resource Systems, pp. 104-107
Disposal/Recovery Systems, pp. 109-111
Communication Systems, pp. 113-114
Transportation Systems, pp. 116, 122-124
Sensory Environment
Noise — Projected Noise Growth, pp. 182-183; Community Noise, pp. 183-185
Visual Aspects of the Plan — Adjacent Lands Impacting Corridors, pp. 191-192

LAND USE PLAN
Description, p. 193
Urban Land Uses, p. 194
Population Projections, p. 198

9. The Growth-Inducing Impact of the Proposed Action

The growth-inducing impact of the project is the amount of new dwelling units and population projected. The Plan directs growth to areas where environmental capabilities for accommodating development are most feasible.

Further discussion of the growth-inducing impact are found in the following sections of the Plan:

URBAN ENVIRONMENT ELEMENT
- Activity Areas
  - Housing Activity — Induced Residential Activity Area, p. 75
  - Commercial Activity — Load Induced, pp. 81-84
  - Institutional Activity — Educational Activity, pp. 89-92
- Infrastructure, pp. 102
  - Resource Systems, pp. 104-105, 107
  - Disposal/Recovery Systems, pp. 109-111
  - Transportation Systems, pp. 116, 122-124

LAND USE PLAN
- Description, p. 193
  - Urban Land Uses, p. 194
  - Population Projections, p. 198-201

FISCAL ELEMENT
- Proposed Added Services and Facilities — Impacts, pp. 223-225

general plan
land use map

adopted june 26, 1975

natural environment/hazard
- hazard areas

urban environment

residential
- ≤1 d.u./5 acres
- ≤1 d.u./acre
- 1-2 d.u./acre
- 2-4 d.u./acre
- 4-6 d.u./acre
- 6-12 d.u./acre
- 12-22 d.u./acre

commercial
- retail
- o office
- r recreational

recreational
- a active
- p passive

institutional
- e educational
- p public
- r religious

agricultural
- agriculture

industrial
- scientific research

infrastructure
- facility
- arterial
- collector

control districts
- urban
- socio-cultural
- natural

specific plan
- specific plan district

AMENDMENTS

(2) 4-6 D.U./ACRE (lots 1,2,3,16 and 17 of Tract 28750)
(4) 6-12 D.U./ACRE (lots 1 thru 8 of Tract 27832)
(5A) 2-4 D.U./ACRE (former Los Cerros School site)
(5B) 2-4 D.U./ACRE WITH URBAN APPEARANCE OVERLAY CONTROL DISTRICT (former Tierra Altra School site)
(6) COMMERCIAL RETAIL, NO NATURAL OVERLAY CONTROL DISTRICT (980 Silver Spur Road)
(10) COMMERCIAL RECREATIONAL (former Abalone Cove School site)
(11) 1 D.U./ACRE (southwest corner of Paseo Del Mar and La Rotunda Drive)
(12) 6-12 D.U./ACRE
(13) 2-4 D.U./ACRE (32201 Forrestal Drive)
(14) EASTVIEW ANNEXATION
(16) COMMERCIAL RETAIL (28041 Hawthorne Blvd.)

NOTE: Amendment Numbers (1) and (7) were withdrawn, (3) is the Coastal Zone, (8) is in suspense, (9) was the original Housing Element, (15) was denied, (17) is under study - (Coastal Subregion 7), (18) is the Housing Element update.

For further details refer to large scale General Plan **Land Use Map**

rancho palos verdes